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COMMERCIAL FOODS, MATHEMATICS - I.

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THE UNDERSTANDING AND MASTERY OF FUNDAMENTAL MATHEMATICS IS A NECESSARY PART OF COMMERCIAL FOODS WORK. THIS STUDENT HANDBOOK WAS DESIGNED TO ACCOMPANY A COMMERCIAL FOODS COURSE AT THE HIGH SCHOOL LEVEL FOR STUDENTS WITH APPROPRIATE APTITUDES AND COMMERCIAL FOOD SERVICE GOALS. THE MATERIAL, TESTED IN VARIOUS INTERESTED CLASSROOMS, WAS PREPARED BY AN INDIVIDUAL INSTRUCTOR AND FOLLOWS THE COURSE OF STUDY APPROVED BY THE BOARD OF EDUCATION. THREE PERIODS PER WEEK FOR ONE YEAR ARE REQUIRED FOR THE UNITS -- (1) WHOLE NUMBERS, (2) FRACTIONS, (3) DECIMALS, (4) PERCENTAGE, (5) MEASUREMENTS, AND (6) ACCOUNTS. EACH UNIT INCLUDES INDIVIDUAL LESSONS WITH OBJECTIVES, RELATED INFORMATION, AND PRACTICAL ASSIGNMENTS. THE TEACHER MAY BE A MATH SPECIALIST OR A COMMERCIAL FOODS INSTRUCTOR. THIS DOCUMENT IS AVAILABLE FOR $1.50 FROM VOCATIONAL-TECHNICAL CURRICULUM LABORATORY, RUTGERS UNIVERSITY, 10 SEMINARY PLACE, NEW BRUNSWICK, NEW JERSEY 08903. (MS)

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State of New Jersey
Department of Education
Vocational Division

COMMERCIAL FOODS

MATHEMATICS - 1

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COMMERCIAL FOODS - MATHEMATICS - I

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RELATED MATHEMATICS I

COMMERCIAL FOODS

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MATHEMATICS I - FOR COMMERCIAL FOODS

Counting, computing and figuring were one of man's earliest accomplishments.

Even before you came to school your mother may have boasted to her neighbors that her child knew how to count.

When you came to school you were taught what is known as the four fundamental processes in mathematics -- addition, subtraction, multiplication, and division.

You learned how important it was to work carefully and thoughtfully because mathematics is known as an "exact science", which means that a problem is either right or wrong.

The first lessons of your mathematics course for Commercial Foods will be a review of these fundamental processes. Your work will also indicate whether you are careful and accurate.

Turn to the next page and start your "Pre-Test". This is not a speed test. Do your work carefully and try to make a good score.

The lessons that follow will show how the fundamental processes are used in all jobs of the foods trade.

UNIT I - WHOLE NUMBERS

Pre-Test No. 1

OBJECTIVE: To recall knowledge of whole numbers and to review the work with whole numbers.

RELATED INFORMATION:

In this lesson you will have an opportunity to review the fundamental processes of working with whole numbers. After you have successfully completed this lesson, you will be ready to proceed with the mathematics planned especially for Commercial Foods workers.

PROCEDURE:

1. Do all of the work on paper furnished by the instructor. Do not write on this sheet.

2. Copy all the problems onto your paper. Papers will be checked for legibility, neatness as well as accuracy.

Check your answers carefully. This is not a speed test.

Exercise 1. Addition

Add the following numbers mentally - just put the answers on your paper.

1. 8 + 4 + 5 + 3 + 2 =
2. 9 + 6 + 7 + 4 + 1 =
3. 10 + 13 + 15 + 11 =
4. 7 + 12 + 3 + 15 =
5. 6 + 15 + 5 + 7 + 17 =

Exercise 2. Copy the following on your paper and add.

1.	2.	3.	4.	5.
3547	$18.95	42976	$178.24	475891
4365	15.16	72877	96.50	652322
6623	45.98	25734	57.95	698507
7832	6.50	86754	6.95	579243
8950	5.65		101.98	126759
4268				324576

Exercise 3. Subtraction

Subtract the following and put the answers on your paper. Do not copy the problem.

1. 18 - 7 =   2. 14 - 9 =   3. 15 - 8 =   4. 12 - 8 =

5. 17 - 5 =

Exercise 4. Copy the following on your paper and subtract.

1. $\begin{array}{r} 239 \\ \underline{-128} \end{array}$ 2. $\begin{array}{r} 487 \\ \underline{-359} \end{array}$ 3. $\begin{array}{r} 842 \\ \underline{-456} \end{array}$ 4. $\begin{array}{r} 9457 \\ \underline{-7068} \end{array}$ 5. $\begin{array}{r} 2965 \\ \underline{-1372} \end{array}$

Exercise 5. Multiplication

Multiply the following mentally and put only the answer on your paper.

1. 7 x 6 =   2. 3 x 7 =   3. 9 x 8 =   4. 5 x 9 =

5. 6 x 8 =

Exercise 6. Copy the following on your paper and multiply.

1. $\begin{array}{r} 488 \\ \underline{\times 307} \end{array}$ 2. $\begin{array}{r} 3566 \\ \underline{\times\ 224} \end{array}$ 3. $\begin{array}{r} 8495 \\ \underline{\times\ 637} \end{array}$ 4. $\begin{array}{r} 6294 \\ \underline{\times\ 176} \end{array}$ 5. $\begin{array}{r} 7384 \\ \underline{\times 4613} \end{array}$

Exercise 7. Division

Divide the following and put only the answers on your paper.

1. 15 ÷ 3   2. 8 ÷ 2   3. 45 ÷ 9   4. 81 ÷ 9   5. 16 ÷ 4

Exercise 8. Copy the following on your paper and divide.

1. $14\overline{)2366}$ 2. $71\overline{)4615}$ 3. $86\overline{)63640}$ 4. $92\overline{)349671}$

5. $84\overline{)354028}$

UNIT I - WHOLE NUMBERS

Checking Daily Bills

Lesson No. 1

OBJECTIVE: To understand the importance of checking daily food orders and bills.

RELATED INFORMATION:

What would you think of a shopper who neglected to check the articles that were in his order? Also, what would you think of a person who neglected to check the prices of the goods that he had purchased? Surely, you would say that he was a very careless person.

The food worker must be more cautious than the shopper because:

a. he is purchasing food in much larger quantities.
b. he is responsible for the receipt of the goods.

PROCEDURE:

Daily orders are written in the "day book" or order book.

Be sure that the count, weight, or size of the package is the same as has been ordered.

Record the prices in the day book.

Check the total.

If there should be any mistakes in prices of quantities, call the dealer for corrections.

ASSIGNMENT:

1. Why should all deliveries be checked carefully?

2. The order book indicates that 150 half pints of milk were ordered, but 148 were received. When would you report the shortage? Why?

3. The total grocery bill is $17.66. After adding it several times, you find that your total is $17.76. What will you do?

4. Twenty-four dozen rolls were ordered. You were charged for twenty-two dozen. What would you do about this situation? Why?

5. A good business person reports all mistakes, whether it affects the dealer or the customer. Explain why this is a good practice?

6. Total the packet of orders that you have received. Find the total of each bill. Add the totals of each to arrive at the total of all. Your teacher will supply the orders.

UNIT I - WHOLE NUMBERS

Issuing Stock Lesson No. 2

OBJECTIVE: To learn how to keep accurate stock records.

RELATED INFORMATION:

The kitchen manager or the stock room clerk is responsible for issuing staples from the store room.

To keep the records uniform, a stock room form has been made.

PROCEDURE:

A.

1. Obtain a form from the file.

2. As each worker requests stock, record the material withdrawn from the stock room on the form.

3. Study the model form below and fill the form in with any supplies issued from the store room.

MODEL STOCK ROOM FORM

DATE	ARTICLE	SIZE	AMOUNT	TOTAL
Nov. 6	Tomatoes	#10	3	3
	Cornstarch	1 lb.	1 lb.	1 lb.
	Spaghetti	1-20 #	10 lb.	10 lb.

4. Fasten the form on a clip board and leave it there while you are acting as stock room clerk. Total all supplies issued before you pass the form on to another clerk. Sign your name to your record.

5. Record each item that is taken from the store room.

6. At the end of the day, total the quantities used.

7. Put the record in the file.

B. It is necessary to keep a special record of the ice cream sales. The store room clerk can prepare one of these before the lunch period.

1. Make out a form as follows.

2. List the items for sale, and the quantities available.

3. The person who sells the ice cream will keep the record.

Daily Ice Cream Record

Date	On Hand	Article	Sold	Total	Left
Nov. 6	84	Ice Cream Sandwich	~~////~~ ~~////~~ ~~////~~ ~~////~~	20	64
	36	Dixie Cups	~~////~~ ~~////~~ ~~////~~ ~~////~~ //	22	14
	60	Fudgcicles	~~////~~ ~~////~~ ~~////~~ ///	18	42

ASSIGNMENT:

1. Total the stock room slips for one month according to the following directions:

   a. List the various items used.

   b. Record the quantity of each item that has been used for the month.

   c. Total the quantity of each item that has been used.

Suggested Form

Monthly Store Room Record

DATE: Sept.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Total
Peaches #10		4			1				8		3						6		1		2	25
Coffee		1		3					1		1				4			2	1	1	1	15
String Beans #10				5			1			6							4					16

NOTE: It is suggested that a form be made out to conform to the dates that school will be in session.

UNIT I - WHOLE NUMBERS

Food Service Records

Lesson No. 3

OBJECTIVE: To understand the application of addition in keeping food service records.

RELATED INFORMATION:

A progressive business must know the number of people that eat in their establishment every day.

Guest check pads provide one method of determining this record. Below is a sample of the check pad.

Guest Check

	Table	Server	Guests
No. 15	3	J.W.	4

EXPLANATION:

No. means number of the check -- this is usually printed on the pad and the numbers are consecutive.

Table means the table number at which the guest has been served.

Server - some means of identifying the person serving.

Guests - the number of people served at this time.

PROCEDURE:

A. Table Service

1. Each check is numbered. If you spoil a check, do not destroy it. The hostess or cashier will direct you as to the way to handle checks that are "void".
2. Table Each waitress or server is assigned a certain number of tables. The number of the table is placed in the box on the check.
3. Server The hostess or manager will instruct you as to the way you mark this box. Some places use the name; some, initials; others use different means of identification.
4. Guests The number of guests in each party should be put in the box provided for this information.

B. Counter Service

The method of counting counter customers varies. We will consider the method that we have found helpful.

1. Put forty half-pints of milk on each serving tray. Record the number of trays set up.
2. Check the various desserts that have been prepared. Record the number of each.
3. Check the number of salads, sandwiches, and all other foods prepared for the counter.
4. Pile the dinner plates or platters in piles of twenty.

C. Ice Cream

The kitchen manager or the stock room clerk will prepare the service record for this station. See directions for keeping this record in Lesson 3.

The server should check the items sold. The cashier will put the money collected from ice cream in a separate register. At the end of the lunch periods these accounts will be checked. The cash and the server's record should agree.

ASSIGNMENT:

1. Get a packet of sales checks from the cafeteria. Figure the number of guests served.
    a. for one day
    b. for one week
    c. for one month

2. Get the register tape and count up the number of sales according to the letters that appear on the tape. "E" is used by the cashier to indicate the number of platters or Federal lunches sold. Count the "E's" and check them with the number of plates that were set up.

3. Consult the lunchroom records for two preceding years. Find the date that corresponds with the one that you are recording. Compare today's guest count with the previous records. Has business increased? decreased? Make a record of the information that you find.

4. Make a table like the sample. Observe - the days of the week that may be consistent with more business. Reasons?

Month	Monday	Tuesday	Wednesday	Thursday	Friday	Total
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						

Cash Register Operation

Lesson No. 4

OBJECTIVE: To learn the method of checking lunchroom receipts.

RELATED INFORMATION:

You, of course, realize the importance of accuracy, if you are operating a cash register. Carelessness here can cost your employer his profit. Overcharges can make a customer angry. (You may even be asked to make up shortages out of your pay). It isn't difficult to see that you need pin-point accuracy in this operation. While 95% in math in school is a good mark, it is not good enough for the cash register operator. She must make a mark of 100%. Nothing else will do.

Some of the causes of overs and shorts are listed. Read these are see if you may not be able to add others to the list.

1. distractions -- conversation with workers or customers.
2. not paying attention to business.
3. insufficient amount of change to begin the day's work.

PROCEDURE:

To total the receipts for the day.

1. remove the money from the cash drawer.

2. take out the change that was in the register.

3. pile the remaining change as follows:

pennies in piles of tens
nickels in piles of tens
dimes in piles of tens
quarters in piles of fours
half dollars in piles of twos
bills -- clip together with a slip of paper on which the amount is written.

Note: If there is extra change of any denomination, keep it aside and add it in later. Some establishments put this change in envelopes marked with the amount and description of the contents.

4. Total the money.

5. Check the money with the total on the cash register tape - the amounts should agree.

6. fill out a register blank with the following headings

Register Reading	Register Receipts	Over	Under

Cashier
Date

ASSIGNMENT:

1. How is the money to be piled?

2. Should the first and second column check? Why?

3. Jane's register report for one week was as follows:

Register Reading	Register Receipts
$26.36	$26.41
41.15	40.99
28.01	28.34
27.44	27.34
31.47	31.42

What was Jane's record for the five day period? Would you consider Jane an accurate cashier?

4. Explain how you would stack the following change:
   7 half dollars
   24 quarters
   30 dimes
   75 nickels
   98 pennies
   $22 in bills.

   a. What is the total amount of money in the above?

   b. The register tape showed a total of $39.35. Was the cashire over or under? How much?

5. If your register shows a tape for $249.87 and you have $250.16 in cash, how much over are you?

6. Monday's cash register receipts were $170.02. The tape showed $171.46. What was the shortage?

7. The receipts for one week amounted to $426.46. There was $75.00 in bills, $25.50 in half dollars; $220.75 in quarters, $59.60 in dimes, $45.00 in nickels, and the remainder in pennies.
    a. How many pennies are there?
    b. Make up the change in piles according to the directions for totaling the daily receipts.

8. If you were getting the money ready to deposit in the bank, it would be necessary to put the coins in wrappers, as follows:

half dollars	$10.00 to each wrapper
quarters	$10.00 to each wrapper
dimes	$ 5.00 to each wrapper
nickels	$ 2.00 to each wrapper
pennies	.50 to each wrapper

    a. How many rolls of each denomination would you have?

    b. Put any extra change in separate envelopes and mark with the coin and the amount.

Make out a slip like the model

	Number	Amount
Bills		
Halves		
Quarters		
Dimes		
Nickels		
Pennies		

Total -- should balance with the amount you started with -- $426.46.

Production Report **Lesson No. 5**

OBJECTIVE: To learn how to prepare a production report.

RELATED INFORMATION:

The record of food prepared as well as what is sold and returned to the kitchen,provides a kitchen manager with a great deal of information.

PROCEDURE:

1. Each cook prepares a record of the different dishes made at his station.

2. After the meal, he counts or measures what food remains. This figure should balance with the quantity of food sold.

ASSIGNMENT:

1. The following is a cook's production report. Complete the last column.

Prepared	Returned	Sold
100 portions soup	10	
65 baked pork chops	0	
40 chicken croquettes	0	
100 portions mashed potatoes	15	
3 quarts gravy	1 pint	
12 pies	2	
6 layer cakes	1	
50 fruit cups	15	
30 servings rice custard	5	

2. The cook ordered 25 porterhouse steaks. Five were left at the end of the day. There was a record of 19 sold. Does this record balance? What is the difference? What might be some reasons for the discrepancy?

3. The production record showed that 75 portions of spaghetti were prepared. The server was able to get 70 from the pan. What was the difference? How might it be accounted for?

4. Sixty-five baked custards were prepared. The counter server accidentally dropped four. How many were actually available for sale?

5. The sandwich cook received 45 slices ham, 20 slices cheese, 40 slices ham bologna, for sandwiches. At the end of the day there were 5 slices ham, 10 slices cheese, and 15 slices bologna left. How many sandwiches of each kind were made, if one slice of each was used for a sandwich?

UNIT I - WHOLE NUMBERS

Counter Report Lesson No. 6

OBJECTIVE: To learn how to prepare a counter report.

RELATED INFORMATION:

A good counter worker is a sales person. Often he can increase sales by suggesting and encouraging customers to take extra items. This form of selling is very profitable to the management and such a worker is very valuable to any establishment.

With such variety of items at the cafeteria counter there is ample opportunity to make suggestions.

The counter report shows exactly how much has been sold at each station at a given interval of time.

PROCEDURE:

1. Obtain one of the counter report blanks.
2. List all of the food items on the menu.
3. Record the quantity of each as it is ready for the counter.
4. At the close of the serving period, record the quantity of left-overs in the column not sold.
5. Subtract from the number listed in the first column.
6. The result will be the quantity sold.
7. Multiply the number in column 3 by the unit selling price. Put the answer in column - total value.
8. Add all the numbers in column 5. This figure will be the total money value of the food sold.
9. The total money value of food sold should equal the cash receipts.

ASSIGNMENT: Complete the following Counter Report:

1.

Food Item	For Sale Servings	Not Sold	Sold	Unit Price	Total Value
Soup					
Tomato	60	10		.05	
Clam Chowder	50	5		.10	
Potato	30	10		.05	
Split Pea	60	10		.05	
Desserts					
Layer Cake	45	2		.15	
Tapioca Pud.	30	10		.10	
Apple Pie	50	30		.10	
Sandwiches					
Egg Salad	30	10		.20	
Ham	25	5		.20	
Cheese	20	10		.15	

2. Complete the following counter report:

Article	Number Sold	Unit Price	Total
Steak Sandwich	50	.75	
Hamburger & Roll	70	.40	
Frankfurter & Roll	60	.20	
Pie			
Apple	48	.20	
Pumpkin	40	.20	
Custard	13	.20	
Cherry	32	.20	
Cake			
Chocolate Layer	25	.15	
Cup	40	.07	

3. The cashier had $110.68. Was the register over or under? How much?

CAFETERIA
DAILY COUNTER REPORT

(Day of Week) Date 19

Food Items	Quantities			Unit Selling Price	Money Value of Sales	Food Items	Quantities			Unit Selling Price	Money Value of Sales
	For Sale	Not Sold	Sold				For Sale	Not Sold	Sold		
Soups	Bowls					Sandwiches					
Vegetable	50	10	40	10	$4.00	Ham	20	0	20	20	$4.00
Cream of Mushroom	35	0	35	15	5.25	Tuna Salad	15	1	14	20	2.80
						Peanut Butter	15	2	13	10	1.30
Hot Dishes						Salads					
Macaroni & Cheese	40	0	40	15	6.00	Fruit	12	0	12	25	3.00
Meat Loaf	50	0	50	10	5.00	Chef's	15	5	10	20	2.00
Vegetables						Desserts					
Peas & Carrots	35	5	30	07	2.10	Jello	36	0	36	05	1.80
Mashed Potatoes	100	0	100	05	5.00	Fruit Cup	20	5	15	07	1.05
						Cup Cake	36	0	36	10	3.60
Other Food Items						Butterscotch Pie	24	0	24	15	3.60
Federal Lunch	100	10	90	25	22.50						

Total Money Value Food Sold	$72.00

Checked by

UNIT I - WHOLE NUMBERS

Food Service Report Lesson No. 7

OBJECTIVE: To learn how multiplication is used in preparing daily food service reports.

RELATED INFORMATION:

You will be very much surprised to learn the number of lunches served in our school over a period of one month.

Records show that in schools alone there are millions of lunches sold to school children every day.

Try to think of the thousands of meals that are served in restaurants, luncheonettes, and various other eating places, and you will begin to understand what a tremendous job this feeding business is.

The habit of "eating out" has grown to such an extent that our business must keep accurate records of the number of meals served every day.

PROCEDURE:

1. Prepare a form like the sample -

Date	E	Value of E	A	Value of A

2. Use the cash register tapes to prepare your record. Tapes for each month are in marked envelopes in the cafeteria.

3. Count up the number of "E's" and "A's" on each tape.

4. Record the number in the correct column of the form.
   Explanation -- "E" represents the number of Federal lunches;
   "A" indicates adult lunches.

5. Multiply each number in column "E" by 25 cents. Put the answers in the column - "Value of E".

6. Multiply each number in the column "A" by 30 cents and put the answers in the column "Value of A".

7. Total each column.

8. To prove your work -- total of column "E" x .25 = the total of column "Value of "E".
   "A" x .30 = the total of column "Value of "A".

Sample

Date	E	Value of E	A	Value of A
Oct. 1	30	$ 7.50	22	$ 6.60
Oct. 2	42	10.50	16	4.80
Oct. 3	57	14.25	30	9.00
Total	129	$32.25	68	$20.40

Proof: 129 x .25 = $32.25
68 x 30 = 20.40

ASSIGNMENT:

1. What would be the total receipts for 607 lunches at 25 cents each?

2. In January, 560 adults purchased lunches at 30 cents each. How much cash was received?

3. If the average luncheon check in a commercial cafeteria was 76 cents, how much would be received from 625 guests?

4. A commercial restaurant owner separated his meal checks for Thursday evening dinner. There were:

   41 checks @ $2.50 each
   8 checks @ 3.75 each
   51 checks @ 1.25 each
   17 checks @ .75 each
   44 checks @ 1.50 each

   a. How many people were served?
   b. What was the total of the receipts for this meal?
   c. What was the average check for this meal?

UNIT I - WHOLE NUMBERS

Costing Recipes **Lesson No. 8**

OBJECTIVE: To learn how to compute the cost of recipes.

To recognize the importance of knowing the cost of materials used in food preparation.

RELATED INFORMATION:

What would you think of a carpenter who built a house and didn't keep a record of the cost of materials that were used?

What would you think of a dressmaker who made a dress and considered just the cost of the cloth used?

I am sure that you would say that these workers would not be successful business people. Every item that is used should be listed and priced so that there is a true picture of the cost of the production of the house or the dress.

The food worker must know the cost of recipes by computing the costs of all the materials used.

It is necessary to make frequent checks of costing recipes because prices change.

ASSIGNMENT:

1. For this lesson you will use current prices. Consult the cafeteria records for these.
   Copy the following recipes. Look up the unit price of each item used. Consult day book, or inventory cards.
   Compute the cost of each recipe. This is materials cost only.

   A. Spanish Rice (50 servings)

3	lb.	bacon
10		green peppers
4	lb.	rice
2	lb.	onions
1	#10	can tomatoes
1	oz.	salt

B. Salmon and Macaroni Salad (50 servings)

3 1 lb. cans salmon
2 lb. green beans
2 qts. diced celery (weigh to determine the quantity needed)
1/4 lb. onions
3 lb. elbow macaroni
1 pt. salad dressing

C. Cottage Pudding (50 servings)

1 1/2 lb. sugar
1 oz. baking powder
4 eggs
1 pt. milk
1 1/2 lb. flour
1/2 lb. vegetable shortening

D. Tapioca Pudding (50 servings)

6 qts. milk
1 1/2 doz. eggs
1 lb. sugar
1 1/2 c. quick tapioca (quick cooking)
1 T. vanilla

2. Find the cost per serving of each of the recipes.

3. Ground beef costs 52 cents per lb. What does 30 lbs. cost?

4. Eggs are 45 cents per dozen. What does a crate of 30 dozen cost?

5. A restaurant prepared 80 servings of chicken to be sold at $1.25 per serving. 56 servings were sold. How much income was derived from this sale?

6. The chicken cost the restaurant operator 44 cents per serving, what was the value of the chicken that was not served?

UNIT I - WHOLE NUMBERS

Yield of Standard Recipes Lesson No. 9

OBJECTIVE: To learn how to divide standard recipes.

To become familiar with the present trends in the use of smaller recipes.

RELATED INFORMATION:

Standard recipes are prepared to yield a definite quantity but there are times when a cook will need to change the yield of a recipe.

The newer trend in food preparation is for the cook to prepare food in smaller quantities. Every cook has his favorite recipes which have often been worked out in large quantities, so it will be a great help to know how to change these recipes and be able to break them down so that they will serve different numbers.

There also will be times when the recipe will need to be increased.

ASSIGNMENT: Change the following recipes to the quantities indicated in each column.

1. Cake Batter	100 Portions	50 Portions	25 Portions
molasses	8c.		
brown sugar	8c.		
buttermilk	8c.		
melted butter	16T.		
eggs	32		
flour	8lb.		
ginger	4T.		
cinnamon	4T.		
baking soda	4oz.		

2. Baked French Toast	24 Portions	12 Portions	48 Portions
bread	24 slices		
egg yolks	12		
granulated sugar	1 T.		
salt	1 T.		
milk	4 c.		

3. Baked Egg Sandwich Roll with Cheese Sauce	36 Portions	24 Portions	6 Portions
hamburger rolls	36		
eggs	36		
fresh tomatoes	9		
melted butter or oil	3/4 c.		
salt	1 1/2 T.		
pepper	3/4 t.		
sauce			
milk	2 1/4 qts.		
butter	12 oz. oz.		
cheese	12 pz. pz.		

4. Select three recipes from one of the following:

Restaurant Management Magazine
Institutions Magazine
Woman's Day Magazine, Good Housekeeping and/or similar magazine
Copy the recipes and state the source.
Figure out each recipe to serve twelve, twenty-five

UNIT I - WHOLE NUMBERS

Use of Standard Serving Equipment Lesson No. 10

OBJECTIVE:

1. To understand how standard measuring equipment is used to obtain uniform servings.
2. To understand how the use of standard measuring equipment provides business with a check on the production as well as the service of food.

RELATED INFORMATION:

Standard measuring equipment has taken the guess work out of food production.

The use of standard serving equipment also makes for satisfied customers. Would you feel that you were being treated fairly if you saw one person in the cafeteria line receive a large serving of food and then when you came along you received a much smaller portion?

Ladles, dippers, and ice cream scoops are some of the tools that are used to give the customer the quantity of food that he should receive for the money he is spending.

PROCEDURE:

1. Obtain several ladles from the kitchen. Fill each with water. Pour the measured water into a measuring cup. Record the amount that each dipper holds. Compare the amounts.
2. Look at the different sizes of ice cream scoops or dishers. On the spring inside the scoop, there is a number. The number indicates the number of servings per quart. Compare the size of the scoop with the number on the spring. Compare the number with the size of the scoop. What is your observation?
3. The slicing machine can be adjusted to yield thick or thin slices. Turn the gauge to the number that you would consider would give slices the desired thickness for a sandwich. A slice of meat or cheese should weigh about 1 - 1 1/2 oz. When you obtain this weight slice, make a note of the number on the machine dial that you should use. By using this number to slice the meat, every sandwich will be uniform.

4. For a salad plate, slightly thicker slices would be needed - the weight should be 2 - 3 oz. When you are able to obtain this weight, record the number so that your salad plate servings will be uniform.

5. Compare the two numbers used in 3 and 4.

ASSIGNMENT:

1. The salad girl prepared four quarts of egg salad mixture for sandwiches. She was instructed to use a #30 scoop of filling for each sandwich. How many sandwiches should she be able to obtain from the mixture?

2. How many quarts of cabbage salad should be made for 96 servings? A number 16 scoop will be used for each serving.

3. The sandwich girl is using a butter cutter that yields sixty cuts to the pound. How many pounds of butter will be needed for 300 servings?

4. The cook figured that each gallon of soup would yield 16- 1 cup ladles. How many gallons should be prepared for 80 servings?

5. One quart of gravy should yield 32 servings. How much gravy should the cook make for 128 servings?

6. A chef was directed to prepare 400 servings of hamburgers. Each was to weigh 4 ounces. How many pounds of meat should the chef order?

7. If you wanted to serve 120 guests, a number 12 scoop of potato salad, how many quarts of the salad would you prepare?

UNIT I - WHOLE NUMBERS

Yield of Standard Packs   Lesson No. 11

OBJECTIVE: To practice computing quantities from various standard packs.

RELATED INFORMATION:

Food purchased for quantity production is packed in what is known as "institutional packs".

If the yield of a standard pack is known, accurate orders can be prepared.

PROCEDURE:

1. Canned goods are packed in various sized cans with a definite number of each size can to a case. Each can has a definite weight of contents. Look at the exhibit of cans of standard sizes. Note the weight or yield which is on the label.
2. Many foods are packed in packages which have a definite number of uniform portions. Meats such as cutlets, steaks, etc., fish fillets, and sticks are examples of this type of packaging.
3. Fresh fruit such as oranges, apples, melons, pears are packed in crates or boxes with a definite count to the package. Other fruits and fresh vegetables are packed in baskets or crates that have standardized weights.
4. Eggs are packed in cases, with a standard count, to the case.
5. Flour, sugar, potatoes are some of the materials packed in bags of standard weights.
6. Consult one of the following books:

   The School Cafeteria - Mary De Garmo Bryan
   Food Production, Marketing, Consumption - Stewart
   Restaurant Management - J. O. Dahl

Look up the following information

1. The weight of a basket of spinach, a crate of lettuce, a box of apricots (fresh), a till of tomatoes, a crate of eggs (small, medium, large). Make a record of your findings.

   Why has it been necessary to specify that these goods have a definite weight in each package? What would be the difference in these two directions -- 4 heads of cabbage -- 15 lbs. of cabbage?

ASSIGNMENT:

1. A restaurant used 20 gallons of salad oil in one week. The oil came packed________gallons to the case.
   How many cases should be ordered for one month?

2. A school used 8,400 half-pints of milk in 21 days.
   What was the daily consumption?

3. There are approximately 20 slices of bread to a loaf, not including the crusts.
   How many loaves should be ordered for 100 sandwiches?

4. How many pounds of butter would be needed for 300 guests, if a cutter yielding 60 cuts per pound were used? for 360 guests with a 72 cut per pound?

5. There are 24 ice cream sandwiches in a package.
   How many packages should be ordered for 480 servings?

6. Fish sticks are packed in 5 lb. boxes of 150 fish sticks each.
   Three fish sticks are used for each serving.
   How many 5 lb. boxes should be ordered for 300 portions?

7. A manager wanted to use 4 oz. Swiss steaks for a luncheon.
   He found the steaks were packed 40 to the box at $11.60 per box.
   What was the cost per serving?

8. An institution pack of frozen vegetables will serve about 30 people.
   How many boxes would be used for 180 servings?

9. A restaurant used two No. 10 cans of peas for a meal.
   If peas are planned for six meals, how many cases should be ordered?

10. There are 176 oranges in a box that cost $5.28.
    What was the cost of one orange?

11. There are five medium size potatoes to one pound.
    How many pounds should be ordered for 500 servings?
    How many 100 pound bags would be ordered? 50 pound bags?
    25 pound bags?

12. If there are 30 dozen eggs to a case, how many guests can be served from one case, allowing 2 eggs for each serving?

UNIT I - WHOLE NUMBERS

Computing the Daily Average Check — Lesson No. 12

OBJECTIVE:

1. To learn how to figure the average amount of the guest checks.
2. To understand the importance of the amount of the "average check".

RELATED INFORMATION:

Every restaurant operator is in business for the purpose of making money.

At the end of the day, he totals the income from the day's business. Also, he will want to know how many customers he has had. With these two figures, he will be able to figure what the average check has been or what the average guest has spent.

The hotel dining room will probably have fewer guests than an automat, so we would expect that the average check for the hotel would be much larger.

PROCEDURE:

First, let us consider our school lunch room. Use the monthly report of the total income. Find the total number of students served. Divide the number who purchased food into the income. This figure will be the average check. (Records are available in the cafeteria)

ASSIGNMENT:

1. An industrial cafeteria for May 16 showed receipts of $314.25. There were 419 guests. What was the average check for the day?
2. The hotel dining room receipts for dinner were $164.25. The average check was $2.25. How many guests were served?
3. A restaurant took in $747.04. There were 322 guests. What was the average check?
4. Compare the average check from the various types of eating places that have been used in this lesson. What factors would cause the variations of the amounts of the average check?

5. A Y.M.C.A. cafeteria served 140 guests at breakfast.
   60 checks amounted to 75 cents each.
   30 checks amounted to 55 cents each.
   50 checks amounted to 45 cents each.

   What were the total receipts for the meal? What was the average check?

6. A lunch room manager found that an average of 25 persons bought cakes at 10 cents per cut. Each person remained 8 minutes to eat the cake. Would this be a profitable business? Reason?

7. A small luncheonette has set the following standard - 10 persons per hour for each of their 20 stools. If each person spent 30 cents, what would be the income for one hour?

8. What would the manager of the above restaurant take in, in the following periods: 1 1/2 hours at breakfast; 2 1/2 hours at lunch?

9. A restaurant manager discovered that he had to take in $265.00 per meal in order to meet expenses and make a living income. If he figured his average check amounted to 85 cents, how many customers must be served per meal?

UNIT I - WHOLE NUMBERS

Achievement Test No. 1

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1. The kitchen manager issued the following number of eggs; six to the meat cook, four dozen to the salad cook, and one and one-half dozen to the baker. How many dozens were issued? At 45 cents per dozen, what was the total cost of the eggs used?

2. From a ham that weighed 14 lbs., the cook was able to carve forty orders. The ham cost 47 cents per pound. What was the total cost of the ham? What was the cost per order?

3. The receipts from one month's business in a small restaurant amounted to $2,463.08. The expenses for food were $1,253.10. How much was left for other expenses?

4. There were 2603 school lunches served in one month. At twenty-five cents each, how much money was received for all of the lunches?

5. There are fifty peach halves to a No. 10 can. How many cans would you need for 150 servings, allowing two halves of peaches for each serving?

6. Lima beans cost 96 cents per No. 10 can. What would be the cost of one case of lima beans?

7. Portion cut, 5 oz. veal cutlets cost 55 cents each. The cutlets are packed 35 to the box. What would be the price for one box?

8. $467.12 + 20.84 + 103.09 + 4.26 =

9. $$\begin{array}{r} 6037 \\ \underline{\times\ 212} \end{array}$$

10. A restaurant record showed that receipts for one week were $4268.18. The average check for the week was $6.02. How many customers ate at the restaurant?

11. A menu advertised the following low calorie luncheon:

ITEM	AMOUNT	CALORIES
Tomato Juice	1/2 cup	50
Roast Beef (lean)	5 slices (2 1/2 x 1/4 in)	100
Radish Roses	3	9
Head Lettuce Wedge with 1 t. French Dressing	$\frac{1}{6}$ medium head	90
Bread with 1/2 t. Butter	1 slice	110
Grapes (seedless)	Medium bunch	75
Iced Tea (clear)	8 oz. glass	0
	Total	

If a woman planned a diet of 2400 calories per day, how many calories could she have for the remainder of the day?

UNIT II - FRACTIONS

Review - Terms **Lesson No. 1**

OBJECTIVE: To learn how fractions are used in Commercial Foods.

RELATED INFORMATION:

You have completed the unit on whole numbers. Were you surprised to find that addition, subtraction, multiplication and division are so important to the foods trade?

Now you are ready to start Unit 2 which will first review your knowledge of working with fractions.

Later in this unit you will learn that fractions are also very important to the foods worker.

The following facts will refresh your memory on the terms used in the study of fractions.

PROCEDURE: A fraction is a part of a whole number. It is composed of two parts. The numerator which is the number written above the line, the denominator is written below the line and indicates the size.

In the fraction $\frac{2}{3}$ a whole thing or "1" has been divided into three parts and two parts have been taken.

"2" is the numerator
"3" is the denominator

1. What do the following mean -- $\frac{5}{6}$ $\frac{3}{4}$ $\frac{1}{8}$ $\frac{11}{12}$ $\frac{3}{23}$ $\frac{6}{64}$ $\frac{10}{20}$

2. Write the following as fractions:
   three sevenths, fifteen forty-fifths, four forty-seconds
   nine sixteenths, seven tenths.

QUESTIONS:

1. a. What is the number above the line called?
   b. What does this number mean?

2. a. What does the number below the line mean?
   b. What is the number below the line called?

QUESTIONS: (Cont'd)

3. How many months do we have in one year?
How many months do we go to school?
Write this number as a fraction.

4. There are ____ cents in a dollar. A boy spent 33 cents.
Write this number as a fraction. How many cents remain?
Write this number as a fraction.

5. A cake is cut into sixteen pieces. Each piece is one ____
of the whole cake.

6. The following fruit is to be used to make four fruit salads.
Write as a fraction, the fruit to be used for one salad.

4 Salads	1 Salad
2 slices pineapple	
1 banana	
1 orange	
$\frac{1}{2}$ cantaloupe	

a.
7. What part of the school day is spent in shop?
b.
One hour of shop time is given to discussion.
Write this number as a fraction of the total shop time of the total school day.

8. A loaf of bread has 20 slices. One slice is ______ of a loaf.

9. There are 12 eggs in one dozen. One egg equals ___ of a dozen.
Two parts of a pear which had been cut into eight parts would be
_____ of the pear.
An orange had 16 segments. Three were used. Write this number
as a fraction.
_______ dimes make one dollar. Each dime is one ____ of the dollar.

UNIT II - FRACTIONS

Review - Types Lesson No. 2

OBJECTIVE: To recall the different types of fractions.

RELATED INFORMATION:

There are three types of fractions:

a. The proper of common fraction ($\frac{2}{3}$)

b. The improper fraction ($\frac{3}{2}$)

c. The mixed number ($3\frac{1}{3}$)

We may change any improper fraction to a mixed number and any mixed number to an improper fraction.

This exercise will be used almost every day in the foods class.

ASSIGNMENT: Classify the following according to the three types of fractions:

1. $\frac{1}{12}$

$3\frac{1}{2}$

$\frac{4}{6}$

$7\frac{1}{8}$

$\frac{5}{2}$

$\frac{12}{8}$

$4\frac{1}{7}$

$\frac{3}{10}$

$\frac{24}{5}$

$6\frac{2}{9}$

2. Change the mixed numbers in No. 1 to improper fractions.

3. Change the improper fractions in No. 1 to mixed numbers.

4. The following foods indicate the quantities as follows:

Baked Beans	15 1/2 oz.
Soup	6 1/4 cups
Corned Beef Hash	5 1/2 lbs.
Corned Beef Hash	5 7/8 lbs.
Mushrooms	1/3 cups
Devilled Ham	1 1/2 tablespoons
Cranberry Sauce	7 5/6 lbs.
Asparagus	6 7/16 lbs.

a. Label these quantities to which types of fractions they represent

b. Change the mixed numbers to improper fractions.

5. The following menu yields about 740 calories. Write the calorie value of each food as a fraction.

onion ring soup	20 calories
2 broiled lamb chops	260 calories
1 c. buttered broccoli	75 calories
1 medium baked potato	100 calories
chefs salad	45 calories
roll and butter	130 calories
black coffee	0 calories
fruit cup with lime sherbert	110 calories

6. A manager found a new recipe. The chef was directed to make a test of the recipe for flavor and acceptance. The recipe and the test recipe follows:

Ingredients	50 Portions	Fraction (Test Portion)
Cauliflower	9 lb.	1 lb.
Butter	12 T.	2 T.
Flour	5 T.	2 T.
Milk	12 c.	2 c.
Cheese (cheddar)	20 oz.	4 oz.
Cheese (Parmesan)	16 T.	4 T.
bread crumbs		

a. Use the numbers in the "50 Portion" column for the denominators of the fractions.

b. Use the number in the "Test Portion" for the numerators.

c. Classify the fractions.

UNIT II - FRACTIONS

Reduction **Lesson No. 3**

OBJECTIVE: To develop skill and accuracy in the reduction of fractions.

RELATED INFORMATION:

It is important that you be able to reduce and handle fractions as this work is the basis of a great part of the food trade work.

Practice in this exercise will be very helpful.

PROCEDURE:

A. To reduce the value of a fraction, the top and bottom numbers are divided by a number which will go into each evenly.
Example:

$$\frac{6}{9} \div \frac{3}{3} = \frac{2}{3}$$

When the resulting answer can no longer be divided on top and bottom by a number common to both, we then have the fraction reduced to its lowest term.

$$\frac{15}{45} \div \frac{5}{5} = \frac{3}{9} \div \frac{3}{3} = \frac{1}{3}$$

B. To reduce fractions like $\frac{28}{8}$ $\frac{14}{4}$ $\frac{7}{2}$ first divide the bottom number into the top, check the remainder, and reduce it as below.

1. $\frac{28}{8} = \begin{array}{r} 3\frac{4}{8} \\ 8\overline{)\,28} \\ \underline{24} \\ 4 \end{array} = 3\frac{1}{2}$

2. $\frac{14}{4} = \begin{array}{r} 3\frac{2}{4} \\ 4\overline{)\,14} \\ \underline{12} \\ 2 \end{array} = 3\frac{1}{2}$

3. $\frac{7}{2} = \begin{array}{r} 3\frac{1}{2} \\ 2\overline{)\,7} \\ \underline{6} \\ 1 \end{array} = 3\frac{1}{2}$

C. The next step is to take a mixed number (a whole number and a fraction) and put it back into fraction form:

$$4\frac{5}{8} \quad = \quad 8 \times 4 \quad = \quad 32 + 5 \quad = \quad \frac{37}{8}$$

We multiply the bottom number (denominator) of the fraction by the whole number and add the top number (numerator) to it.

To reduce the improper fraction to a mixed number, we divide the denominator into the numerator, subtract, show the remainder.

Example:

$$\begin{array}{r} 4\frac{5}{8} \\ 8\overline{)\;37} \\ \underline{32} \\ 5 \end{array} \quad = \quad 4\frac{5}{8}$$

ASSIGNMENT:

1. Reduce the following fractions to lowest terms.

$$\frac{2}{6} \quad \frac{4}{8} \quad \frac{16}{24} \quad \frac{8}{32} \quad \frac{10}{25} \quad \frac{20}{50} \quad \frac{21}{49} \quad \frac{12}{18} \quad \frac{14}{48} \quad \frac{45}{60}$$

2. Change to improper fractions.

$$5\frac{1}{2} \quad 10\frac{3}{8} \quad 5\frac{1}{6} \quad 7\frac{6}{7} \quad 8\frac{1}{3} \quad 4\frac{5}{12} \quad 3\frac{11}{24} \quad 5\frac{4}{9} \quad 9\frac{3}{9} \quad 4\frac{6}{26}$$

3. Write as a whole number or a mixed number.

$$\frac{15}{2} \quad \frac{13}{5} \quad \frac{16}{4} \quad \frac{9}{5} \quad \frac{88}{8} \quad \frac{36}{10} \quad \frac{23}{7} \quad \frac{14}{3} \quad \frac{36}{6} \quad \frac{34}{11}$$

4. Change each fraction to the denominator named.

$\frac{1}{3}$ to eighteenths

$\frac{7}{12}$ to forty-eighths

$\frac{1}{2}$ to eighths

$\frac{2}{3}$ to thirtieths

$\frac{2}{11}$ to forty-fourths

$\frac{2}{13}$ to twenty-sixths

5. $\frac{6}{16}$ lbs. butter = _____ lbs. butter

6. $\frac{21}{3}$ teaspoons sugar = ______ t. sugar

7. $\frac{17}{2}$ lbs. salt = ______ lbs. salt.

8. $\frac{13}{26}$ lbs. sugar = ______ lbs. sugar.

9. $5\frac{1}{2}$ lbs. chopped beef = ______ lbs. beef.

10. $\frac{32}{4}$ qts. milk = ______ qts. milk

11. $\frac{84}{12}$ cups milk = ______ cups milk

12. $\frac{120}{4}$ lbs. crisco = ______ lbs. crisco

13. $\frac{16}{8}$ lbs. flour = ______ lbs. flour

14. $\frac{340}{17}$ lbs. gelatine = ______ lbs. gelatine

15. $\frac{27}{2}$ lbs. tapioca = ______ lbs. tapioca

16. $\frac{23}{4}$ tablespoons baking powder = ______ tablespoons baking powder

17. $\frac{11}{4}$ teaspoons cream of tartar = ______ teaspoons cream of tartar

18. $\frac{637}{13}$ cans tuna = ______ 13 oz. cans tuna

19. $\frac{48}{4}$ lb. salmon = ______ 1 lb. cans salmon

20. Change $\frac{136}{16}$ to a mixed number.

UNIT II - FRACTIONS

Addition and Subtraction

Lesson No. 4

OBJECTIVE: To review work in addition and subtraction of fractions.
To learn how these processes are used in the food classes.

RELATED INFORMATION:

When we have a group of fractions that do not have a common denominator, we must have one before we can compare size or add or subtract them.

PROCEDURE:

1. To find the least (lowest) common denominator for a group of fractions - e.g. $\frac{1}{6}$ $\frac{3}{8}$ $\frac{2}{9}$ $\frac{3}{4}$

    a. Place the denominators of the group of fractions in a horizontal line with a hypen between them.

    b. Box them in as in short division.

    /6-8-9-4

    c. Check for common factors in one or more numbers. See if there is a number that can be divided evenly into several of these denominators. In this case 2 goes into 6-8-4.

    2/6-8-9-4

    d. Divide and bring down the quotients that were divisable an exact number of times.

    2/6-8-9-4
    3-4---2

    e. Bring down the denominators that were not divisible. Repeat until all the denominators are reduced to 1.

    2/6-8-9-4
    2/3-4-9-2
    2/3-2-9-1
    3/3-1-9-1
    3/1-1-3-1
    1-1-1-1

f. Multiply all numbers on the outside of the box.

2 x 2 = 4 x 2 = 24 x 3 = 72

72 is the L.C.D. or least (lowest) common denominator.

2 Practice -- Find the least (lowest) common denominator for the following fractions:

a. $\frac{1}{3}$ $\frac{1}{4}$ $\frac{1}{7}$ $\frac{1}{2}$

b. $\frac{1}{5}$ $\frac{1}{3}$ $\frac{1}{6}$ $\frac{1}{2}$

c. $\frac{1}{7}$ $\frac{1}{5}$ $\frac{1}{3}$ $\frac{1}{6}$

d. $\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{4}$ $\frac{1}{5}$

3. Before fractions can be added, the bottom numbers or the denominators must all be the same. Therefore, find the L.C.D. Add the numerators and reduce the fractions if necessary.

Example: Add $\frac{3}{4}$ $\frac{1}{4}$ $\frac{1}{4}$ $\frac{3}{4}$ All these fractions have a common denominator.

Add $2\frac{1}{16} + 3\frac{3}{16} + 7\frac{5}{16} + 2\frac{1}{16}$ All denominators are the same.

Add the whole numbers.

2 + 3 + 7 + 2 = 14

Adding the whole numbers and the fraction = $14\frac{5}{8}$

4. Practice - add the following:

a. $\frac{3}{8}$ c. $\frac{9}{16}$ e. $7\frac{1}{8}$ g. $7\frac{3}{64}$ i. $5\frac{1}{2}$
$\frac{5}{8}$ $\frac{1}{4}$ $6\frac{3}{8}$ $11\frac{5}{8}$ $3\frac{7}{12}$

$\frac{1}{8}$ $\frac{1}{8}$ $9\frac{3}{8}$ $2\frac{1}{4}$

b. $\frac{3}{4}$ d. $2\frac{1}{4}$ f. $2\frac{3}{16}$ h. $8\frac{11}{12}$ j. $1\frac{2}{3}$

$\frac{1}{2}$ $5\frac{3}{4}$ $5\frac{3}{8}$ $5\frac{5}{8}$ $5\frac{1}{8}$

$\frac{3}{8}$ 6 $3\frac{1}{2}$ $2\frac{9}{16}$

5. **Subtraction of fractions like addition requires a L.C.D.**
Example: subtract $\frac{3}{8}$ from $\frac{7}{8}$; $2\frac{3}{16}$ from $9\frac{11}{16}$

$$\begin{array}{r} \frac{7}{8} \\ -\ \frac{3}{8} \\ \hline \frac{4}{8} = \frac{1}{2} \end{array} \qquad\qquad \begin{array}{r} 9\frac{11}{16} \\ -\ 2\frac{3}{16} \\ \hline 7\frac{8}{16}\ \ \frac{1}{2} = 7\frac{1}{2} \end{array}$$

Practice:

a. $\begin{array}{r} 15\frac{2}{3} \\ -\ 7\frac{9}{16} \\ \hline \end{array}$

b. $\begin{array}{r} 7\frac{15}{32} \\ -\ 6\frac{1}{8} \\ \hline \end{array}$

c. $\begin{array}{r} 5\frac{7}{12} \\ -\ 3\frac{1}{2} \\ \hline \end{array}$

d. $\begin{array}{r} 53\frac{3}{18} \\ -\ 19\frac{1}{9} \\ \hline \end{array}$

e. $\begin{array}{r} 27\frac{4}{5} \\ -\ 19\frac{3}{4} \\ \hline \end{array}$

ASSIGNMENT:

The following quantities of materials were used in the kitchen. Find the total of each.

a.	Flour	$2\frac{1}{8}$ c.	$4\frac{1}{4}$ c.	$1\frac{1}{16}$ c.	$3\frac{1}{4}$ c.
b.	Eggs	$\frac{1}{12}$ doz.	$2\frac{3}{12}$ doz.	$2\frac{1}{3}$ doz.	$3\frac{1}{6}$ doz.
c.	Butter	$\frac{1}{4}$ lb.	$2\frac{1}{8}$ lb.	$3\frac{1}{16}$ lb.	$1\frac{3}{4}$ lb.
d.	Milk	$1\frac{1}{3}$ qts.	$4\frac{1}{4}$ qts.	$5\frac{1}{8}$ qts.	$3\frac{1}{6}$ qts.

e. Four and one quarter pounds of vegetable fat were issued from the store room. Two and one-eighth pounds were used. What remained at the end of the meal?

f. There were $2\frac{2}{3}$ dozen oranges in the refrigerator. The salad cook used $1\frac{1}{4}$ dozen (one and one-fourth dozen). What was left?

g. $25\frac{2}{3}$ lbs. potatoes minus $10\frac{1}{4}$ lbs. = ______ lbs.

h. $7\frac{2}{5}$ gallons milk minus $4\frac{1}{4}$ gallons = ______ gallons

i. The kitchen manager has seventeen and one half dollars in the petty cash fund. The following expenditures were made: six and one half dollars, three dollars and one quarter, one dollar and twenty cents.
Write the amount of money as fractions.
Figure the expenditures and the amount of money that was left.

j. The inventory showed that there was $3\frac{5}{8}$ lbs. pepper on hand. The inventory at the end of the following month showed that there was $2\frac{3}{16}$ lbs. on hand. How much pepper was used?

UNIT II - FRACTIONS

Multiplication **Lesson No. 5**

OBJECTIVE: To learn how the multiplication of fractions is used in the foods trades.

RELATED INFORMATION:

There are several types of problems in the multiplication of fractions. Most of the problems in the foods shop involve work with simple fractions. You will find the work in the foods shop more simple after this review.

PROCEDURE: Multiplication of simple fractions.

a. $\frac{3}{4} \times \frac{1}{2} \times \frac{3}{8}$

1. Look for cancellation from top to bottom - there is none.

$$\begin{array}{l} 3 \times 1 \times 3 = \underline{9} \\ 4 \times 2 \times 8 = 64 \end{array}$$

2. Multiply the top numbers (numerators)
3. Multiply the bottom numbers (denominators)
4. Answer is $\frac{9}{64}$

b. $\frac{9}{16} \times \frac{2}{3} \times \frac{1}{2} \times \frac{5}{8}$

1. Cancel from top to bottom.

$$\frac{\cancel{9}^{3}}{16} \times \frac{\cancel{2}^{1}}{\cancel{3}_{1}} \times \frac{1}{\cancel{2}_{1}} \times \frac{5}{8}$$

(2 into 2)
(3 into 9)

2. Multiply top 3 x 1 x 5 = 15.
3. Multiply bottom 16 x 1 x 1 x 8 = 128.
4. Answer $\frac{15}{128}$

c. The next step you will want to review is the multiplication of a whole number by a mixed number.

1. $6 \times 2\frac{1}{2}$

a. Change mixed number to improper fraction.

$$\frac{\cancel{6}^{3}}{1} \times \frac{5}{\cancel{2}_{1}} = 15$$

b. Cancel.
c. Multiply top number.
d. Multiply bottom number.

2. Another method of putting the same problem down

$$\begin{array}{rcrcr} 6 & = & 6 \times 2 & = & 12 \\ \times\ 2\frac{1}{2} & = & +6 \times \frac{1}{2} & = & \underline{3} \\ & & & & 15 \end{array}$$

Practice:

$$12 \times 4\frac{3}{4} = \frac{\overset{3}{\cancel{12}}}{1} \times \frac{19}{\underset{1}{\cancel{4}}} = 57$$

or

$$\begin{array}{r} 12 \\ \times\ 4\frac{3}{4} \\ \hline 48 \\ 9 \\ \hline 57 \end{array} \qquad \frac{3}{\underset{1}{\cancel{4}}} \times \frac{\overset{3}{\cancel{12}}}{1} = 9$$

$$15 \times 3\frac{5}{8} = \frac{15}{1} \times \frac{29}{8} = \frac{435}{8} = 54\frac{3}{8}$$

or

$$\begin{array}{r} 15\frac{5}{8} \\ \times\ 3 \\ \hline 45 \\ 9\frac{3}{8} \\ \hline 54\frac{3}{8} \end{array} \qquad \frac{5}{8} \times \frac{15}{1} = \frac{75}{8} = 9\frac{3}{8}$$

3.

a. $\frac{9}{10} \times \frac{3}{4} =$

b. $9\frac{1}{3} \times \frac{7}{12} =$

c. $3\frac{1}{2} \times 7\frac{1}{2} =$

d. $2\frac{4}{7} \times 4\frac{2}{3} =$

e. $16 \times \frac{5}{12} =$

f. $12\frac{1}{2} \times 8\frac{1}{4} =$

g. $8\frac{5}{16} \times 4\frac{1}{2} =$

h. $2\frac{5}{9} \times 8\frac{1}{36} =$

i. $4\frac{7}{9} \times 6\frac{2}{3} =$

j. $11\frac{2}{5} \times 9\frac{3}{4} =$

ASSIGNMENT:

1. One Minute French Dressing

Basic Recipe		$1\frac{1}{2}$ Times Recipe	$3\frac{1}{2}$ Times Recipe
Salt	$2\frac{1}{2}$ tablespoons		
Sugar	2 tablespoons		
Pepper	2 teaspoons		
Paprika	2 teaspoons		
Prepared Mustard	$1\frac{1}{2}$ tablespoons		
Vinegar	2 c.		
Worcestershire Sauce	1 tablespoon		
Oil	$1\frac{1}{2}$ quarts		

2. Use three of the following recipes:

   a. Indicate the source of the recipe that you use. (book, page; card, number)
   b. Copy the recipe.
   c. Figure the part of the recipe indicated by the fraction to the right.

   1. Chili Con Carne
   2. Cottage Pudding
   3. Oatmeal Cookies
   4. Barbecue Sauce
   5. Corn Soup

3. A restaurant sells 300 cups of coffee a day. How many cups would be sold in: $\frac{1}{3}$ of a day? $\frac{1}{12}$ of a day?

4. A 7 lb. leg of lamb yields

   10 - servings -- each $\frac{1}{4}$ lb.
   13 - servings -- each $\frac{3}{16}$ lb.
   20 - servings -- each $\frac{1}{8}$ lb.

   What could the chef figure from (a) five 7 lb. legs? (b) eight 7 lb. legs?

5. In making out an order for dishes, silver, and glassware for a commercial cafeteria that was to be equipped to serve 300 guests, the manager was advised to order the following:

No. Guests	Equipment	Quantity	Total
300	Dinner Plates	$1\frac{1}{2}$ times	
	Bread & Butters	$3\frac{1}{2}$ times	
	Sauce Dishes	$2\frac{1}{3}$ times	
	Sherbert Glasses	$4\frac{1}{4}$ times	
	Water Glasses	$2\frac{2}{3}$ times	
	Knives	$1\frac{1}{2}$ times	

UNIT II - FRACTIONS

Size Comparison **Lesson No. 6**

OBJECTIVE: To understand the meaning of fractions as to size comparison. To learn how to apply this knowledge in the work of the foods trade.

RELATED INFORMATION:

Sometimes it is difficult for a worker to think in parts instead of a whole number. This is especially true when we are attempting to make a comparison of size. Part of the confusion that we may experience may be cleared up if we will always remember the meaning of "fraction" -- as part of one.

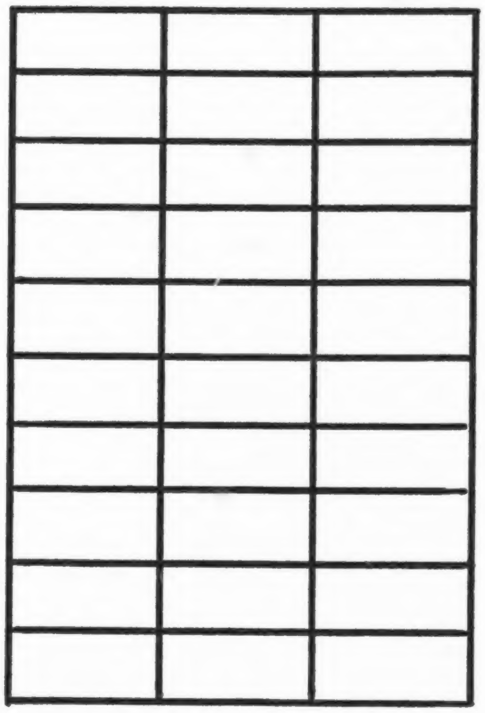
It would be quite different if you asked your father for a dollar and he gave you one-fourth of a dollar. You would know this immediately because you have been handling money for some time. However, when you were a child, numbers or parts of numbers made little difference to you.

In one of our earlier lessons we spoke of the need for uniform servings to keep a customer happy. Therefore, to accomplish this we must always divide that ONE into an equal number of parts that must be the same size.

PROCEDURE:

1. Study the accompanying diagrams. Count the number of parts into which each whole unit has been divided. Write the total of the number of parts for each diagram.
2. Write the fraction that would represent one part of the diagram.
3. How do these pieces compare in size?
4. Do you think it would make any difference to a customer which piece he had been served? Explain your answer.

A



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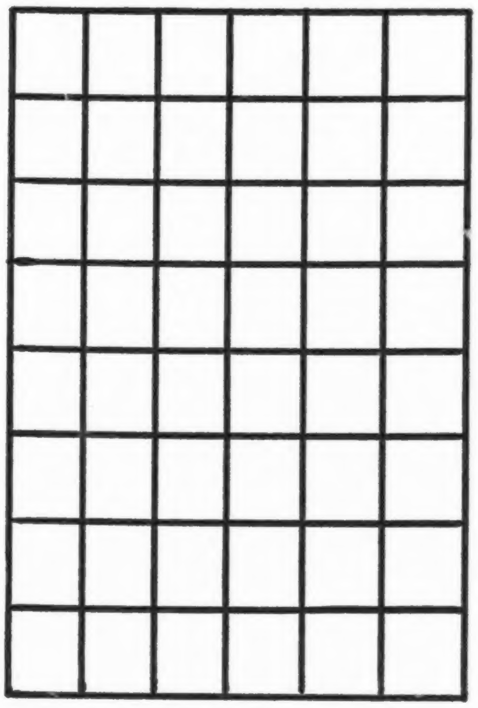

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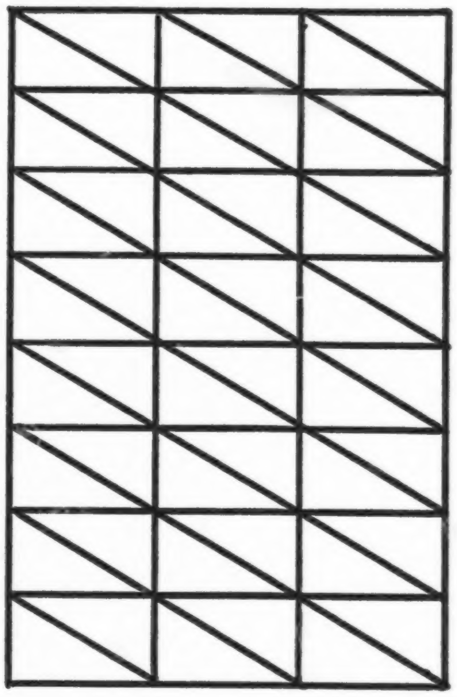

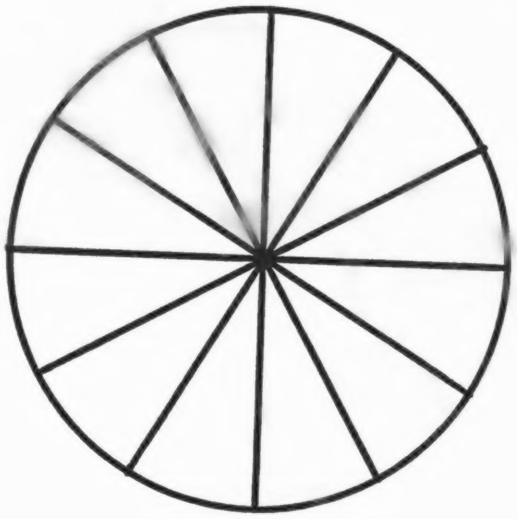

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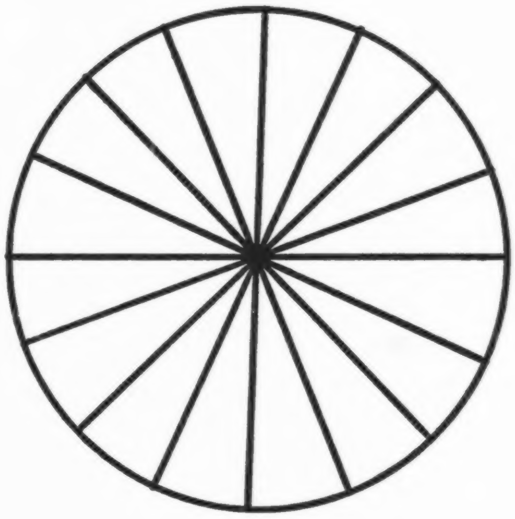

E

ASSIGNMENT:

1. Oranges are packed in boxes containing 150,288, 176 or 216 oranges. One orange from each box would be what fractional part of the box. Which would be the largest orange? the smallest?

2. A family of five uses a 25 pound bag of potatoes in ten days.

    a. What part of the bag is used each day?
    What part of the daily quantity consumed is the fractional allowance per person?

    b. Write as a fraction the quantity consumed daily by each person.

3. There are five tomatoes to one pound. Each tomato is to be sliced into five slices. Each salad has $\frac{3}{25}$ of the total number of slices or ____ slices on each salad.

   The salad maker was told to serve two slices on a sandwich. How did the number of slices of tomatoes on each item compare with the salad above?

4. $\frac{1}{18}$ = 1 part of a package of Mr. Bigs. There are _____ in one package.

5. 10,000 paper napkins are in one case.
   - a. $\frac{1}{5}$ of the case = _______ napkins.
   - b. $\frac{1}{8}$ of the case = _______ napkins.
   - c. $\frac{1}{25}$ of the case = _______ napkins.
   - d. $\frac{1}{20}$ of the case is used for each meal. The case of napkins will be used up in ________ meals.

6. A group borrowed five dozen forks for a picnic. Four forks were lost. What fraction of the total number borrowed was lost? What fraction of the total number was returned?

7. John wanted to buy one dozen oranges from a box that was marked 150 oranges to the box. Mary said she wanted a dozen from a box marked 176 oranges to the box because she would get a larger orange than John.
   Who got the larger orange? Prove it.

8. a. From a crate of 45 cantaloupe the salad maker was told to make 405 servings. What part of a melon would be used for one serving?
   b. If eight pieces were cut from each melon, would the serving be larger or smaller than the first way the melon was cut?

9. The charge for a #40 scoop of ice cream is seven cents; for a #12 scoop, fifteen cents.
   - a. Why this difference in price?
   - b. If you could afford either serving, which would you select?
   - c. If a customer was watching calories, which serving should be selected?

10. There are 500 milk straws packed in each box.
    100 students take two straws each.
    - a. What fraction of the box is used by the students?
    - b. If each student took one straw, what fraction of a box would each student use?
    - c. In one week 25 straws were dropped on the floor or were ruined and had to be thrown away. What fractional part of the box was lost?

11.
    - a. One box of 500 milk straws cost 25 cents. What is the cost of one? Write this number as a fraction.
    - b. What would be the additional cost to the cafeteria if 250 straws were used daily? The straws are furnished to the customer as an added milk cost to the management.
    - c. At the cost per straw, how much money would be lost in forty weeks if 25 straws were ruined in a week.
    - d. Milk costs the cafeteria $6\frac{1}{4}$ cents per half pint. What is the added cost of furnishing two straws?
    - e. What part of a dollar does this added cost represent?

UNIT II - FRACTIONS

Computing Loss of Weight in Food Preparation   Lesson No. 7

OBJECTIVE: To learn the importance of considering the difference in the weights before and after food preparation or cooking.

RELATED INFORMATION:

Many people who have had little experience and training in food preparation do not take this loss into consideration in computing the cost of foods.

This can be one cause for a business failure.

If you know how to make these calculations, you can be a valuable worker to any establishment.

PROCEDURE:

A. 1. Prepare 10 lbs. of chopped beef for a meat loaf. Weigh all of the ingredients that you have used. Add them to the weight of the meat.

2. Before serving, weigh the cooked meat. Record the weight.

3. Weigh the fat that is in the pan.

4. Is there any difference between the first and second group of figures?

5. Use the weight of the fat that has accumulated in the pan as the numerator of the fraction, and the weight of the meat before it was put in the oven as the denominator. That fraction is the part of the meat that was lost during cooking.

B. 1. Stem, clean, and prepare seven pounds of spinach (fresh). Cook according to directions (no water to be used for cooking).

2. When the spinach is tender, drain it thoroughly. Do not throw the original weight of the vegetable as the denominator. The fraction indicates the loss in weight.

3. Weigh the cooked vegetable.

4. Use the figure from No. 2 as the numerator of the fraction, the original weight of the vegetable as the denominator. The fraction indicates the loss in weight.

ASSIGNMENT:

1. A turkey weighed 16 1/4 lbs. after cooking. The meat was removed from the bones. There was 7 1/4 lbs. solid meat that could be used for slicing. 1 lb. 7 oz. that could be used for salads and sandwiches. The skin weighed 6 oz. What was the weight of the bones?

2. A dessert cook prepared twelve quarts of cup cake mixture. How many cup cakes should this twelve quart batch yield if a 16 scoop is used to measure the mixture?
   The dessert cook made 184 cakes. What fractional part of the mixture was wasted?

3. The vegetable man put 35 lbs. of potatoes into the vegetable peeler. He did not sort the potatoes according to size. When he took the potatoes out of the machine he was instructed to weigh them. The weight was 30 lbs. What fraction of the load was lost through careless handling?

4. Two tablespoons of butter was scraped from the butter cutter that had been placed on the dish machine to be washed.
   What part of a pound of butter was being wasted?
   How many days will this waste continue before one pound of butter would be lost?
   Find out the current cost of one pound of butter.
   How much money was being lost daily?
   How many days would elapse before one dollar would be lost?

5. Two and one-half dozen bananas weighed 10 lbs. The weight of the fruit after removing the skin was 8 lbs. What fraction represents the loss in weight after removing the skins?

6. A watermelon weighed 25 lbs. The rind returned after serving weighed 2/5 of the original weight. What was the weight of the edible portion (E.P.)?

7. Consult the text book -- Production, Marketing and Consumption - Stewart
   for the following information:

   a. the number of quarts of cream needed for 1 lb. butter
   b. the quantity of milk and cream needed for 1 lb. cheese
   c. the weight of the bones from a beef carcass

8. Comment on the information you have gathered and discuss its application to this lesson in applied mathematics for foods trade.

UNIT II - FRACTIONS

Portioning Foods Lesson No. 8

OBJECTIVE: To appreciate the method of portioning foods so that the yield will be as planned and so that portions will be equal.

RELATED INFORMATION:

The need for equal portions cannot be emphasized too much. A little thought on pans, their size, shape, etc. will help you. Pans for the steam table, the sauce pans, soup pots and other utensils are constructed to hold specified quantities.

PROCEDURE:

1. Look at the marking on the outside of the stock pot.
   This pot holds _____ gallons.
   - a. If it is half full of soup, there should be a yield of _____ gallons.
   - b. The cook was instructed to make one-quarter of a pot of the soup. How many gallons should be prepared?
2. a. Measure the number of cups of water that will be needed to fill the coffee maker to the brim. ______ number of cups.
   - b. Would you fill the coffee maker to this point? Why? Empty the coffee maker and measure the water so that it is three-quarter full. How many cups did you need to fill it to this point? Use the first number that you have for the denominator of the fraction, the last number as the contents of the coffee maker?
3. a. Measure the number of quarts of water that will be needed to fill the soup pot from the steam table to the very top.
   - b. Record the number.
   - c. Put eight quarts of water into the pot. What part of the total volume is eight quarts?
   - d. One-fourth of a quart of soup is given on an "a la carte" order. What would be the yield from eight quarts of soup?
   - e. 1/8 quart of soup is served as part of the luncheon menu. What would be the yield from eight quarts?

ASSIGNMENT I:

1. Make the following paper models:
    a. a circle the size of the pie tin
    b. a circle the size of the layer cake tin
    c. a rectangle the size of
        1. the largest cookie or baking sheet
        2. the rectangular pans, one of each size including a loaf or bread tin

2. Divide the circles so that 8, 9, 6, equal servings can be made. Each would be one ______, one ______, one ______, of the whole circle or pie or cake.

3. Measure the length and the width of the rectangular sheets of paper. Divide into 12, 24, 48, 36, 30 servings. Each serving would be what fractional part of the whole? Compare the size of each serving.

4. Divide the model of the loaf tin into slices that will be $\frac{3}{4}$ inch in width or thickness. How many slices have you made from the loaf?

5. Recipe cards are worked out for standard portions and will give this information, (a) recipe yield, (b) size of the pan to use. What advantage is this information to the worker?

6. Butter and margarine are frequently in solid pounds prints. Cut such a print into half, cut each into half again, cut each of these pieces into half again, each piece in half again. How many pieces are there? Each piece is what part of the pound?

ASSIGNMENT II:

1. A cup of soup holds $\frac{1}{4}$ cup, a bowl holds $\frac{1}{2}$ cup of soup, a shallow soup plate $\frac{1}{3}$ cup. Which is the largest serving? the smallest?

2. A portion of a layer cake divided into twelve pieces, is one ______ of the cake.

3. If each piece of cake in the former problem was sold for a quarter of a dollar, what would be the receipts from two cakes?

4. A pie cut into six cuts would give a customer one ______ of the pie.

5. Six cans of pie cherries will be needed for 48 (9 inch pies). What fraction of the case of cherries would be needed for four pies? (six cans of cherries to a case)

UNIT II - FRACTIONS

Achievement Test No. 2

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1. The record showed that of 385, 500 eating places, one-third went out of business for varied reasons. How many establishments failed?

2. One pound of soup base will make five gallons of soup. How many gallons can be made from three-fifths of the jar?

3. 4 1/2 pounds of chicken was waste (bones, skin, etc.) The original weight of the chicken was 18 1/2 lbs. How much chicken meat was usable?

4. Add the following:

   a. $47\frac{7}{12}$
   $8\frac{3}{4}$
   $16\frac{1}{4}$
   _____

   b. $4\frac{5}{8}$
   $2\frac{3}{4}$
   _____

   c. $33\frac{1}{2}$
   $9\frac{7}{8}$
   $3\frac{1}{4}$
   _____

5. Multiply the following:

   a. $15 \times 1\frac{1}{3}$ b. $72 \times \frac{1}{4}$ c. $4\frac{1}{2} \times 50$

6. Take $\frac{1}{4}$ of the following recipe:

   6 qts. milk
   12 T. cornstarch
   10 T. cocoa
   $\frac{3}{4}$ c. sugar
   2 t. vanilla

7. Take $1\frac{1}{2}$ times the following recipe:

   2 lb. flour
   4 t. baking powder
   1 t. salt
   3 c. sugar
   $1\frac{1}{2}$ c. fat
   $2\frac{1}{4}$ c. milk
   1 t. flavoring

8. Divide

a. $\frac{3}{5} \div \frac{3}{10}$ b. $\frac{8}{25} \div \frac{36}{45}$ c. $12\frac{1}{2} \div \frac{5}{14}$

9. A restaurant owner found the money he took in from the week was spent as follows:

$\frac{1}{5}$ for food, $\frac{1}{8}$ for rent, $\frac{1}{4}$ for wages, $\frac{1}{10}$ for utilities
$\frac{1}{20}$ for insurance.

a. What part of the income was spent?
b. What part of the receipts was left?

10. A student who is present every day for the school year is in school for 1080 hours.

540 hours = fractional part of year spent in shop
90 hours = fractional part of year spent in art
108 hours = fractional part of year spent in English
180 hours = fractional part of year spent in Phys. Ed.
162 hours = fractional part of year spent in other studies

UNIT III - DECIMALS

Review Lesson No. 1

OBJECTIVE: To recall and review the use of decimals.

RELATED INFORMATION:

The division of integral unit into 10ths, 100ths, 1000ths, etc. is called decimal division. There are three ways of expressing a decimal division:

1. words - nine-tenths
2. common fraction - $\frac{9}{10}$ $\frac{9}{100}$ $\frac{9}{1000}$
3. decimals - .9, .09, .009

In other words, any fraction having 10,100, or 1000 or any multiple of ten for the denominator may be written without the denominator. In its place we have the decimal form and decimal point.

You recognize in No. 2 that the decimal may be written as a common fraction, so decimals are really fractions written in another way.

The following is a table that will help you to recall. Each number is based on its position in relation to the decimal point.

Decimal places are read as follows:

.0 - tenths
.00 - hundredths
.000 - thousandths
.0000 - ten-thousandths

.8 - eight tenths
.08 - eight hundredths
.008 - eight thousandths
.0008 - ten-thousandths

Note that the number to the right of the decimal point ends in ths; the number to the left in ds.

Example: Use the table - read the following:

7,385,651.789: Seven million, three hundred eighty five thousand, six hundred fifty one and seven hundred eighty-nine thousandths. The decimal point is read as "and".

PRACTICE:

A. Write the following numbers in words:

1.	135.678	6.	178.8937
2.	221.1156	7.	663.098
3.	3327.776	8.	732.8092
4.	54321.7898	9.	2144.928
5.	457.3486	10.	116.2492

B. Write the following words in numbers:

1. One thousand, two hundred forty-six and two thousand, one hundred nine thousandths.
2. Six million, eight hundred two thousand, one hundred ninety-two and three hundred seventy two thousandths.
3. Three thousand and five ten thousandths.
4. Twenty four and six one hundredths.
5. Eighty four thousand, three hundred two and forty-four hundredths.
6. Four hundred twenty eight, ten thousandths.
7. Thirty nine and twenty five thousandths.
8. Seven and fifteen hundredths.
9. Sixteen and seventy thousandths.
10. Fifty six thousandths.

ASSIGNMENT: Study the following table. This is an example of a food analysis chart of the nutrients in canned foods.
1. You will notice that the decimals are used in many parts of the chart. Answer the questions that follow the chart.

Food	Wt. Gm.	Approx. Measure	Calories	Prot. Gm.	Fat Gm.	Cho. Gm.	Ca. Mg.	P. Mg.	Fe Mg.	Vit.A I.U.	Thia. Vit.B Mg.	Ribo-flavin Mg.	Niacin Nicotinic Acid Mg.	Ascorbic Acid Vit.C Mg.
Apricots	122	4 halves - 2 T. syrup	105	.6	.2	25.0	9.8	19.5	.85	2650	.022	.024	.42	5
Tomato Juice	182	6 oz.	38	1.5	.2	7.5	12.7	32.8	1.64	1575	.100	.051	1.40	27
Beans Cut Green	108	$\frac{1}{2}$cup	21	1.2	.1	3.8	36.7	22.7	1.30	320	.030	.039	.35	3
Salmon	113	$\frac{1}{2}$cup	168	24.2	7.9	.1	207.9	330.0	.68	.75	.024	.181	8.83	--

a. Which food in the above table is the best source of Vitamin C? __________
Which food in the above table is the poorest source of Vitamin C? __________

b. Which food in the above table yields the greatest number of calories? __________
Which food in the above table yields the smallest number of calories? __________

c. What food in the above table is a good source of Vitamin A? __________
What food in the above table is a poor source of Vitamin A? __________

d. What food in the above table has the largest amount of carbohydrate? __________
What food in the above table has the least amount of carbohydrate? __________

e. List the foods in the above table in order of importance in yield of calcium __________
List the food in the above table that is the best source of phosphorous __________
List the food in the above table that is the best source of iron __________

2. Prepare a chart like the model on the previous page. List the following foods on the chart:

Fresh orange juice	4	oz.
Cornflakes	1/2	cup
Whole milk	1	cup
White toast	2	slices
Butter	2	t.
Hard cooked egg	1	
Chopped cabbage	1/2	cup
Mayonnaise	1	T.
Fresh tomato	1	medium size
Whole wheat muffin	1	
Sliced canned pineapple	1	large slice
Ground beef	4	oz.
Potato baked	1	medium
Raw carrot sticks	2	oz.
Jello	4	oz.
Whipped cream	2	T.
Butter	2	t.
Whole milk	1	cup
Vanilla ice cream	4	oz.
Salted peanuts	2	oz.
Milk chocolate bar	1	(plain)
Coca cola	1	bottle

Consult one of the following text books for a food chart analysis:
Elements of Food and Nutrition -- Dowd and Dent.
Foods for Home and School -- Harris and Lacey.

3. List the food values for the foods that are listed in No. 2. This list of foods is representative of three meals that a teen-ager should be eating. Snacks have been provided for between meals.

BE CAREFUL IN RECORDING THE FIGURES.
YOU WILL USE THE CHART AGAIN IN ANOTHER LESSON.

4. To verify the occurrence of aluminum in foods, a manufacturing company has printed the following information. Aluminum can be found in foods as follows: whole wheat 3.45, raw carrots 3.80, green cabbage 22.70, apples 1.50. Write in words the quantity of aluminum that is present in each of the foods listed.

5. The minerals in the sample foods chart are ______, ______ and ______.

6. What food on your chart is the best source of phosphorous?

7. Which fruit on your chart is the best source of iron? How much iron does each fruit provide?

UNIT III - DECIMALS

Converting Fractions to Decimals

Lesson No. 2

OBJECTIVE: To review the method of converting fractions to decimals. To become acquainted with the application of this operation to the foods trade.

RELATED INFORMATION:

To change a decimal to a common fraction, use the figures in the quantity as a numerator and place for the denominator the figure one followed by as many zeros as there are figures to the right of the decimal point in the quantity.

A. Example: $.8 = \frac{8}{10}$ the 8 (quantity) is placed over 1 plus 1 zero because we have but 1 number after the decimal point

$.85 = \frac{85}{100}$ because we have 2 numbers after the decimal point, hence 2 zeros

Practice: Change the following to common fractions:

1. .325
2. .004
3. .0205
4. 9.3
5. .546

B. To change a common fraction to a decimal, we divide the denominator into the numerator and add a decimal point plus 2 zeros

Example: $\frac{3}{4} = \begin{array}{r} .75 \\ 4\overline{)3.00} \\ \underline{28} \\ 20 \\ \underline{20} \end{array}$

Practice: Change the following to decimals:

1. $\frac{1}{20}$
2. $\frac{2}{5}$
3. $\frac{1}{8}$
4. $\frac{1}{2}$
5. $\frac{1}{4}$
6. $\frac{3}{4}$
7. $\frac{3}{8}$
8. $\frac{5}{8}$
9. $\frac{7}{8}$
10. $\frac{1}{5}$
11. $\frac{3}{5}$
12. $\frac{4}{5}$
13. $\frac{1}{12}$
14. $\frac{1}{3}$
15. $\frac{2}{3}$

ASSIGNMENT:

1. A food establishment that spent $500.00 has an inventory valued at $125.00. Write this problem as a decimal. As a fraction.

2. A gallon of milk weighs 8.36 pounds.
   a. How many quarts in 41.80 lbs.
   b. How much will 41.80 lbs. cost at 21 cents per quart?

3. Change the following to decimal numbers:

$$8\frac{3}{8}, \qquad 27\frac{8}{16}, \qquad 15\frac{3}{20}$$

4. A manager divided his eight hour working day as follows:
   1 hour checking stock
   2 hours planning meals
   4 hours visiting markets, checking and comparing prices
   1 hour conference with the cooks
   Write these various periods as fractions. As decimals.

5. A dishwashing engineer found that $3\frac{1}{5}$ minutes were needed for complete cleaning of one rack of dishes. Write this figure as a decimal. How many racks could be cleaned in two hours?

6. Frozen shrimp are packed in 2.5 lb. packages (15, 20, 30 to the pound).

   a. What would be the count for a package of each size?

   b. At the current market price what would be the cost of each package?

   c. How many shrimp cocktails could be made from each package if
      3 shrimp from the 15 count package were used
      4 shrimp from the 20 count package were used
      6 shrimp from the 30 count package were used

   d. At 65¢ per cocktail, how much would a restaurant receive from the sale of a box of each size shrimp which were made into cocktails?

   e. Figure the loss or gain at the current market price.

7. After analysis of food costs, the manager found that it was necessary to "mark up" the selling price to cover the cost of labor, etc. Figure the costs from the following table:

	Food Cost	Mark Up	Selling Price
a.	.55	$\frac{2}{5}$	
b.	.81	$\frac{2}{3}$	
c.	.75	$\frac{1}{2}$	
d.	.25	$\frac{1}{5}$	
e.	.35	$\frac{4}{5}$	
f.	.66	$\frac{1}{6}$	

UNIT III - DECIMALS

Addition and Subtraction **Lesson No. 3**

OBJECTIVE: To review the procedure in adding and subtracting decimals. To practice these operations in problems related to the foods trade.

RELATED INFORMATION:

In adding or subtracting numbers with decimals, there is just one rule to remember -- keep the decimals under each other and in a straight line.

Example: 18.03 + 41.9 + 207.31 (Addition)

18.03
41.90 -- note -- a zero may be used to fill in the column
+207.31
267.24

Example: 31.309 - 19.56

31.309
-19.560--note - zero added
11.749

Practice:

1. Copy the following and add.
    a. 9.028 + 116.05 + 5.945 + 75.07
    b. 3.5 + 111.721 + 4.005 + 17.205
    c. 2.1 + .003 + 103.5 + 17.205
    d. 6.215 + 3.97 + 178.2 + 156 + 3.001 + 10.2
    e. 5.0245 + 110.721 + 4.07 + 15.2036 + 7.5 + 14.08

2. Copy the following and subtract.
    a. 31.809 - 19.56
    b. 1053.16 - 1007.407
    c. 306.4 - 32.09
    d. 78.5137 - 59.306
    e. 205.06 - 140
    f. 402.09 - 325.387

ASSIGNMENT:

1. In Lesson 1 of this unit, you made a chart showing the analysis of various foods. Find the total of the following columns:
   - a. protein grams
   - b. fat grams
   - c. carbohydrate grams
   - d. calcium milligrams
   - e. phosphorous milligrams
   - f. iron milligrams
   - g. thiamin
   - h. riboflavin
   - i. niacin

   Note: This exercise can be used in computing diets.

2. The following chart has been prepared to show the number of calories used per hour per pound of body weight for various activities. Figure the difference in the calorie requirement for each pair of activities.

Activity	Calories	Activity	Calories	Difference
a. walking upstairs	7.18	bycycling	1.10	?
b. dancing	1.95	eating	0.65	?
c. skating	2.10	swimming	3.25	?
d. sitting at rest	0.65	sleeping	0.43	?
e. running	3.70	sitting at work	0.7	?
f. dishwashing	0.93	vacuum cleaning	1.78	?
g. singing	0.79	sewing by hand	0.72	?

3. In the table below
   - A represents the price of the meal to the guest
   - B represents the cost of the entree (meat or meat substitute)
   - C represents the cost of other courses (salad, appetizer, etc.)
   - D represents the total food cost B + C
   - E represents all other expenses such as labor, heat, profit, light, etc. A-D

   Assignment: Fill in columns D and E

Price of Meal	Cost of Entree	Cost of Other	Total	Cost Allowed for Other Expenses
A	B	C	D	E
.60	.09	.15		
.80	.17	.15		
1.25	.35	.15		
.70	.13	.15		

NOTICE: that as the cost of the meal increases, the cost of the entree increases. That the cost of the other courses remains the same. How would you account for this situation?

4. Meat costs before and after cooking were as follows:
   Fill in C.

Raw A	Cooked B	Increase C
.24	.42	
.28	.49	
.32	.56	
.40	.70	

UNIT III - DECIMALS

Multiplication
Lesson No. 4

OBJECTIVE: To practice multiplication of decimals.
To discover how these processes are applied to work in the foods trade.

RELATED INFORMATION:

To multiply with decimals, the number of decimal places in both numbers are counted. The total is counted off in the answer. Count from right to left and then point off.

Example:

A. 8.24 x .95 2 places + 2 places = 4 places

8.24
x.95
4120
7416
78280 point off 4 places 7.8280
7.828 the zero may be crossed off

B. .0036 4 places + 0 places = 4 places
x72
72
252
.2592 4 places

Practice: Multiply the following:

a. 7.03 x .09
b. 46.9 x 50.7
c. .25 x .06
d. .95 x 8.25
e. 87.5 x 8.24
f. 30.08 x .67

ASSIGNMENT:

1. A girl weighs 125 lbs. She irons for two hours. Each hour that she is working she uses 0.93 calories per pound. How many calories would she use for the entire period?

2. The circumference of a circle is 3.1416 x the diameter. Measure the diameter of the following and figure the circumference of each:
   a. a pie tin
   b. a layer cake tin
   c. a dinner plate
   d. a bread and butter plate
   e. a sauce dish
   f. an opening in the steam table I
      for the largest inset, for the smallest inset.

3. If the cost of preparing a bowl of soup is .0193, what would it cost to prepare 50 bowls. If the soup is sold for 15 cents per bowl, what is the profit on one bowl? on 50 bowls?

4. At $1.10 per hour, how much would a worker make in 43 hours?

5. Multiply the following:
   a. .185 x 17
   b. .0625 x 48
   c. .0875 x 74
   d. .1575 x 38
   e. .6125 x 67

6. Meat costs 0.125 per serving. What will be the cost of 62 servings?

7. How much will be made if it is sold for .625 per serving?
   a. per serving?
   b. on the total servings?

8. The cost of one plum is 0.0013 cents. What is the cost of 85 plums?

9. Pork chops cost .2375 each. What will be the cost of 145 chops?

10. a. A portion of pie costs 0.143 cents to prepare. What would 24 pieces or 3 pies cost?

    b. .057 was made on 1 piece. What would the profit be on the three pies?

UNIT III - DECIMALS

Division

Lesson No. 5

OBJECTIVE: To practice division of decimals in preparation for their use in the foods trade.

RELATED INFORMATION:

To divide a whole number into a decimal put the decimal point in the answer just above where it is inside the box.

Examples:

a. Dividing a whole number into a number containing a decimal:

$6\overline{)6.96}$

First, place the decimal for the answer right above the decimal in the dividend. Then divide.

$$\begin{array}{r} 1.16 \\ 6\overline{)6.96} \end{array}$$

b. Dividing a whole number into a whole number with the idea of getting a decimal in the answer:

$5\overline{)17}$

$$\begin{array}{r} 3.4 \\ 5\overline{)17.0} \\ \underline{15} \\ 2\,0 \\ \underline{2\,0} \end{array}$$

- Place the decimal at the end of the dividend and add a zero. The decimal in the answer (quotient) should be directly above the decimal in the dividend.

c. Dividing a decimal number into a decimal number:

$.038\overline{).231762}$

Clear the decimal from the divisor. To do this, move the decimal to the right as far as you can, in this case 3 places.

$.038\overline{).231762}$

Then move the decimal in the dividend just as many places to the right as you moved it in the divisor, in this case 3 places. (Note that the zero in this divisor is no longer needed).

$.038\overline{)231.762}$

Place the decimal in the answer directly above the decimal in the dividend.

$$.038\overline{)231.762}$$

Divide.

```
      6.099
 38/231.762
    228 xx
      376
      342
       342
       342
```

Practice:

a. 3.036 divided by .06

b. 3.728 divided by 16

c. 10.044 divided by 36

d. 75.025 divided by 25

e. 82.50 divided by 1.25

f. .45 divided by 15

g. 1.44 divided by .8

h. 168.72 divided by 12

ASSIGNMENT: Find the cost of the following:

1.

Portions	Cost	Cost Per Unit Serving
a. 15	.50	
b. 45	$117.45	
c. 35	14.00	
d. 20	1.08	
e. 20	9.309	

2. Compute the yield (number of portions) from the following. Carry out to 3 decimal places.

Article	Total Cost	Cost Per Serving	Yield
a. cheese sandwich	$9.375	.075	
b. bread (banana)	2.70	.135 per loaf	
c. olives	3.90	.007	
d. peas (canned)	4.60	.0894	
e. pineapple (canned slices)	7.00	.1272	
f. beans (green)	3.85	.116	
g. cranberry sauce	6.50	.112	

3. $84.00 was received from 112 guests. What was the average check?

4. 12 shrimp cost 0.6552 cents. What was the cost of 1 shrimp?

5. Divide:

   a. 1.7243 by .43
   b. 475.13 by 1.18
   c. 82.614 by .028
   d. 41357 by .175
   e. 580.5 by 21.5

6. Complete the following:

Total Cost	Per Unit Cost	Number of Units
a. $57.50	.0525	
b. 137.85	.2175	
c. 8.40	.0215	
d. 62.425	.0625	
e. 193.80	1.15	

UNIT III - DECIMALS

Short Processes

Lesson No. 6

OBJECTIVE: To develop skill and increase efficiency when working with decimals

RELATED INFORMATION:

Whenever we wish to multiply or divide by such numbers as 10, 100, 1000, etc., we may use a short process.

A. To multiply: the decimal point is moved to the right as many places as we have zeros

Example:

652. x 10 = 6520.
52. x 100 = 5200.
.0046 x 10 = 0.046
.0046 x 1000 = 004.6 or 4.6

B. To divide: move the decimal point one place to the left for each zero in the divisor.

Example:

625. ÷ 10 = 62.5

7837 ÷ 100 = 78.37

19.536 ÷ 100 = .19536

18.271 ÷ 1000 = *.018271

15.623 ÷ 10000 = .0015623

*Zeros must be prefixed as shown when necessary.

Practice: Multiply the following:

a. 3.32 x 10

b. 56.8 x 100

c. 32.1 x 1000

d. 6.892 x 10

e. 46.8 x 100

f. 78.92 x 10

g. 5.86 x 100

h. 78.9 x 10

i. 221.56 x 100

j. 3.35 x 10

Practice: divide the following:

a. 68.25 ÷ 10
b. 256.11 ÷ 100
c. 338.7 ÷ 10
d. 6.892 ÷ 100
e. 46.8 ÷ 10
f. 221.56 ÷ 100
g. 5.86 ÷ 100
h. 78.92 ÷ 10
i. 6.543 ÷ 10
j. 562.21 ÷ 10

ASSIGNMENT:

1. A camp director worked on a food allowance of 82 cents per child per day. There were 200 children at the camp. What was the total food allowance for the entire camp population? The total food allowance for the season was $8200.00. How many days of camp were there?

2. Figure the following total costs:
   a. 40 qts. milk@ 17.5 cents per qt.
   b. 200 loaves bread @ 13.5 cents per loaf
   c. 1000 servings of jelly @ .007 cents per serving.
   d. 180 eggs @ .04 each.

3. A budget of $4000.00 was allocated to the foods department for new equipment. .3 of the budget was planned for a new refrigerator. How much will the refrigerator cost? How much will be left for other equipment? Write this figure as a decimal.

4.
   a. At $36.00 for 200 servings of meat, what is the price per serving.
   b. At $3.20 for one theatre ticket, what is the cost of 200 tickets?
   c. 170 lbs. ham cost $136.00, what is the price per lb.?
   d. Text books cost $2.40 each, the total cost $57.60. How many text books were purchased?

5. If 100 cans of sardines cost $28.00, what is the cost of one can?

6. If a 100 lb. drum of pancake mix costs $18.00, what is the cost of one pound?

7. If 720 slices of melba toast cost $4.32, what is the cost of one slice?

8. Shoulder lamb chops cost .26 each. What will be the cost of 40 servings? One chop per serving.

9. One hundred, thirty-six, one ounce servings of apple jelly cost $1.15. What is the cost per serving?

10. The cost of one No. 10 can of tomato juice is .5166. It yields 32-3oz. servings. What would be the cost of one serving? of 50 servings?

11. What would be the cost for 2 ounces of tuna fish if 66 1/2 oz. cost $3.60? If two ounces of fish are used for each sandwich, what would be the cost for 100 sandwiches?

12. There are 30 dozen eggs in a case. At $13.50 per case, what would be the cost of one egg?

13. 110 eggs were used for a meal. What was the food cost for eggs for that meal?

14. A gallon of water weighs 8.35 pounds. Milk weighs 1.03 times as much as water. What is the weight of a gallon of milk? 40 qts.?

15. .5958 is the cost of one quart of salad dressing. What is the cost of one gallon?

UNIT III - DECIMALS

Computations Lesson No. 7

OBJECTIVE: To be able to apply the use of decimals in the various computations in business procedures of the foods trades.

RELATED INFORMATION:

A successful foods operator must pay strict attention to money details.

In previous lessons, the cost of servings or portions of foods was stressed. It may have been surprising to you that a per serving cost was small. However, it is these small costs that an owner must watch. Also realize that you have been working with food costs, only. Later you will consider other costs that must be considered in carrying on a business.

Dollars and cents computations will involve all of the processes you have practiced earlier in your work in the Commercial Foods mathematics.

PROCEDURE: Recall all of the situations in which you have used dollars and cents since you have been in the foods class.

Breakage of china and glassware in restaurants results in losses totalling millions of dollars a year. Consult the cafeteria inventory for the price list of the various types of dishes (plate, cups, etc.). Breakage is costly.

ASSIGNMENT:

1. Use the price list of dishes and compute the loss if the following were broken in one month:
    - 4 dinner plates
    - 6 bread and butter plates
    - 1 salad plate
    - 2 tea pots
    - 3 sauce dishes
2. A restaurant purchased 100 lbs. of corned beef at 32 cents per lb. They sold 665 corned beef sandwiches at 20 cents each. The corned beef for each sandwich cost 12 cents and there was a three cent allowance for bread (no butter or salad dressing used). Did the restaurant gain or lose on this transaction? How much?
3. Three gallons of corn soup was scorched, and had to be thrown away. The management found that it cost 50 cents to make one gallon of soup. What was the total loss?

4. Each employee was given a meal allowance of one dollar per meal. Three employees took an extra serving of ice cream which could have been served or sold for 25 cents per serving. One employee took a 35 cent piece of pie and one took two frankfurters at 12 cents each and two rolls to go with the frankfurters, which cost 3 cents each. There were 12 employees. What was the cost to the management for the food that was allowed? What was the additional cost to the management for the extra food consumed? What was the total cost?

5. The porter found 4 forks, 2 knives, and 6 teaspoons in the refuse from the dining room. If these had been lost, what money value would have been lost -- knives cost $6.45 per dozen, forks $5.60 per dozen, teaspoons $1.10 per dozen.

6. An employee reported for work 10 minutes late. He worked 2 1/2 hours and then took a coffee break of 20 minutes. Later in the day he made a personal phone call on his employer's time, which took 14 minutes from his work. He was to work until 6:30 P.M. but he left his station at 6:24 P.M. How many minutes of company time did this worker use and lose? If the employee received $1.00 per hous, how much money did he collect for not working?

7. Consult the current issue of Restaurant Management magazine or Institutions Magazine. Report any topics in either magazine that will illustrate losses in business operation. Illustrate your report by showing actual figures used in the article.

8. Milk (bulk) cost $.175 per quart. Half pints (containers) cost .0625 per half pint. What would be the cost of one quart of the milk if half pints were used for food preparation? Would the management gain or lose by this procedure? Why would he prefer that the cooks use the bulk milk?

9. Milk costs $.0625 per half pint. What should the selling price be to clear 3 cents on each half pint?

10. a. If 30-40 half pints of milk were left over every day, what would be the criticism of the person placing the daily orders?

    b. What would the 30 cost the owner at the price previously stated?

UNIT III - DECIMALS

Relation of Decimals and Computations **Lesson No. 8**

OBJECTIVE: To understand the relation of the use of decimals to the various computations in the foods department.

RELATED INFORMATION:

There is scarcely an operation in the food trade where dollars and cents can be eliminated.

From the beginning of business to the close, the consideration of money transactions is paramount.

All of the fundamental operations that were reviewed will be used in the following lessons.

Reminder: Watch the decimal point in all of the work that you will be doing.

PROCEDURE: Work the following problems which are representative of the type you will meet with in the trade.

1. 800 students spent 25 cents each. What was the total amount spent?

2. Find the total cost of the following:
   15 lbs. butter @ 60 cents per lb.
   12 heads lettuce @ 20 cents each
   15 bunches celery @ 15 cents each
   10 dozen rolls @ 24 cents per dozen
   30 lbs. watermelon @ 4 cents per lb.

3. 75 guests spent $36.00. What was the average check?

4. 70 Idaho potatoes cost $3.00. What should be added to the unit cost to bring up the selling price to ten cents each? Carry out the decimal to three places.

5. Meat cost is 65 cents per pound. It is sold at 95 cents per pound. What is the gain per pound? What would be the profit on 18 1/2 pounds?

6. It costs approximately $10.00 per formula to test and perfect a dish to a point of satisfaction. If 300 formulas were to be tested, what would be the cost of this service? How long would it take an operator to make up for this cost if he allowed 50 cents per day to his daily expense budget?

7. A 24 pound leg of veal yields approximately 38 portions. At 54 cents per serving, what would be the receipts from the sale of the veal?

8. $450.00 was received from 70 guests. What was the average check?

9. A foods worker worked 8 hours on Monday, 6.5 hours Tuesday, 7 hours Wednesday, 5 hours Thursday, and 8.5 hours on Friday. What were the total number of hours worked? At $1.25 per hour, what would the total wages be?

10. At 92 cents per pound for coffee, what would be the cost of one cup allowing 40 cups to each pound? Add .015 per serving for cream and .0014 for sugar. What should the selling price of one cup be in order to make a profit of 5 cents on each cup of coffee?

UNIT III - DECIMALS

Invoices

Lesson No. 9

OBJECTIVE: To learn to apply the information on decimals in working with invoices.

RELATED INFORMATION:

When goods are delivered to an establishment, a delivery slip or bill or invoice in left with each order. The goods are checked against the invoice for quantity and price. Invoices that accompany an order for staples or for any large quantity of goods may have added shipping charges, which increase the actual cost of the goods.

Also, check the invoice for the "brand" of goods to make sure that nothing of inferior quality is slipped into the order.

PROCEDURE:

1. Prepare an invoice or a bill for the following:

   a. 2 cases 24 No. 2 Tomato @ $2.75 per case
   4 cases 24 1 lb. cans @ 23.45 per case
   3 cases 48 1 lb. cans salmon @ 31.50 per case

   b. A charge of ten cents per case will be made for delivery. What would be the cost of delivery?

   c. What will be the total cost of the goods?

2. The following equipment items were purchased. What should be the total of the bill?

5 dozen 5 oz. glasses	@ $1.80 per dozen
6 dozen 12 oz. glasses	@ 3.60 per dozen
10 dozen teaspoons	@ 1.70 per dozen
12 dozen forks	@ 2.40 per dozen
6 dozen knives	@ 4.35 per dozen

3. Trays are listed as follows:

less than 5 dozen	$39.95 per dozen
for lots over 5 dozen	35.95 per dozen

What is the per tray cost at each figure?
A sample try set of four is offered for $12.00. Suppose some one put in an order for three of the sample sets, what would be the price per dozen? per tray?

4. a. An order was placed for 6 dozen dinner plates @ $9.56 per dozen and 8 dozen 6 inch bowls @ $4.94 per dozen. What should be the total of the invoice?

   b. On checking the order, two bowls were found to be have been broken in shipment. The dealer told the customer to deduct the price of the items from his bill. What will be the amount of the deduction?

5. The following statement or invoice was received from the milk dealer:

2467 half pints milk	@	.0625	$154.19
3-40 qt. cans bulk milk		.175 per qt.	20.04
10 qts. heavy cream	@	1.67 per qt.	16.70
3 qts. light cream	@	.92 per qt.	3.68
20 lbs. cottage cheese	@	.17 per lb.	3.40
			$198.01

Check this statement. If you find any errors, make a note of them. Check the total. If you should find any errors, what would you do?

6. A box of 216 oranges at $5.75 was ordered, but when the delivery was made it was a box of 176. The dealer said that the customer could have the box delivered for the same price although the larger oranges cost more per box. Would holding this box be a bargain? Why? Prove your answer. How much would be received for each box if the oranges were sold for 5 cents each?

7. Take the daily delivery slips for the milk for one month. Make out a chart as follows, using the headings -- H.C. (heavy cream) L.C. (light cream)

Date	1/2 Pts.	Qts. bulk	Qts. H.C.	Qts. L.C.	Pts. H.C.	Pts. L.C.	1/2 Pts. H.C.	1/2 Pts. L.C.	Cottage Cheese 8 oz.	Cottage Cheese 5 lbs.

8. Check the totals and check the charges with the statement from the milk company.

9. Make a similar chart for the ice cream. Copy the headings for your chart from the delivery slips. Check the bill from the ice cream company just as you did from the milk company.

UNIT III - DECIMALS

Receipts Lesson No. 10

OBJECTIVE: To practice using decimals in figuring receipts.
To learn the application of decimals to the computation of receipts.

RELATED INFORMATION:

In the last lesson, the subject of moneys spent was considered. This lesson emphasizes moneys received.

The importance of being able to analyze costs and to figure them in dollars and cents has been discussed in an earlier lesson.

In this lesson we will consider sources and methods of handling receipts or moneys received.

PROCEDURE:

A. Consult the day book. Make a list of all the money received for each day for one month. Find the total receipts.

B. $1146.63, $1238.41, $942.08, $2001.66, $1805.06, $214.18
Add these receipts.

ASSIGNMENT:

1. The following is a report from a dining room that had a system of charges. Charges are considered as cash sales

Cash Sales	Charges	Total Sales
$ 82.27	4.12	
102.19	3.95	
62.45	2.17	
58.72	.86	
71.38	3.25	
Total	Total	Total

2. Many restaurants or eating places have various sources of income besides the regular dining room receipts. Copy and add the following:
a. from the dining room $763.82, b. from the lunch counter $60.40, c. from the baked goods counter $49.23, d. from "take out orders" $154.29. What were the total receipts for the day?

3. An owner of a small restaurant devised the following method of computing the daily receipts. He sorted the daily slips in various denominations. One day his record read as follows:

Number of Tickets	Denominations	Total
54	.35	
75	.50	
24	.75	
21	1.00	
43	1.25	
10	1.50	
7	2.25	
3	2.50	____
	Total	

4. The owner gave the cashier $15.00 in change to start the day. When the cash was checked against the daily receipts, there was a total of $193.00. This included the money used for the cash drawer. Was the cashier over or under? How much?

5. The owner considered this an average day's business. What was the total number of guests served on the day in Problem 3? What was the average check?

6. Using the total sales as an average for a day's business, what would be the receipts for 20 days?

7. The following expenses were deducted from the receipts for 20 days:

   $1046.23 food supplies, $565.00 labor, $125.00 rent.

   What will remain from the month's receipts to take care of other expenses, savings, and a salary for the owner?

UNIT III - DECIMALS

Achievement Test No. 3

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1. Write the following as decimals:
    - a. two hundred seven and eighty three thousandths
    - b. seven tenths
    - c. seventy two and ninety three thousandths
    - d. six and five hundredths
    - e. three hundred forty six millionths

2. Add the following:

    139.327 + .427 + 27.083 + 18.27 + 1.64

3. Subtract the following:
    - a. 105.207 - 20.003
    - b. 117.05 - 18.24
    - c. 29.325 - 18.66
    - d. 807.6 -135.2
    - e. 21.4300 - 8.1291

4. Multiply the following:
    - a. .875 x .36
    - b. .002 x .014
    - c. 32.25 x 2.376
    - d. 6.42 x 50
    - e. 48.37 x 25

5. Divide the following:
    - a. 93.66 by 21
    - b. 467.967 by 4.01
    - c. 281.3232 by 3.76
    - d. 468.312 by 316
    - e. 350.96 by 214

6. What will be the cost of the following: 3 bags of potatoes @ $3.75 each, 32 lbs. butter @ .81 per lb., 2 - 100 lbs. sugar @ $5.75 each?

7. $467.14 + $201.36 + $420.01 + $296.43 + $819.63 represent the receipts for five days. If the expenses were $1546.23, for the same period, what remains?

8. A cook works 7 hours on Monday, 8 hours Tuesday, 4 hours and 45 minutes on Wednesday, 6 hours and 15 minutes on Thursday, 8 hours on Friday and 10 hours on Saturday. At $2.50 per hour, what would the cook earn?

9. Multiply the following by the short method:

a. 54.3 x 100
b. 221.46 x 10
c. 409.54 x 1000
d. 68.4 x 50
e. 201.3 x 100

10. Divide the following using the short method:

a. 802.5 by 100
b. 61.5 by 10
c. 611.50 by 10
d. 212 by 100
e. 41968.5 by 1000

11. Work out the following unit costs:

Total Cost	Number	Unit Cost
35.20	48	
3.96	176	
3.125	50	
50.00	40	
24.00	96	

UNIT IV - PERCENTAGE

Review Lesson No. 1

OBJECTIVE: To recall the terms that apply to percentage.

RELATED INFORMATION:

Percentage is a name given to a group of rules or methods used in business transactions.

The term percent is used to indicate the number of hundredths. It means two decimal places and is expressed by the sign %.

You will find the word used frequently in papers, magazines, on the radio and TV.

PROCEDURE: In one dollar there are 100 cents.
One cent may be written in the following manner:

a. fraction $\frac{1}{100}$ b. as a decimal .01 c. or as 1%

3% would mean $\frac{3}{100}$ or .03

25% would mean $\frac{25}{100}$ or .25

50% would mean $\frac{50}{100}$ or .50

5% would mean $\frac{5}{100}$ or .05

Any percent above 100 is more than 1 whole unit.

110% equals $\frac{100}{100} + \frac{10}{100}$ or 1.10

200% equals $\frac{100}{100} + \frac{100}{100}$ or 2

125% equals $\frac{10}{100} + \frac{25}{100}$ or 1.25

There may be time when you will need to change a fraction into percent:

Example: fraction $\frac{7}{8}$ Use the denominator as the divisor.

The divisor:

$$\begin{array}{r} .875 \\ 8/\overline{7.000} \\ \underline{64} \\ 60 \\ \underline{56} \\ 40 \\ \underline{40} \end{array}$$

Use the numerator as the dividend and add 3 zeros.

To get percent from the decimal .875, move the decimal point to the right 2 places -- 87.5%

ASSIGNMENT: Work out the following:

1.

	Fraction	Decimal	Percent
a.	$\frac{1}{2}$		
b.	$\frac{1}{8}$		
c.	$\frac{1}{5}$		
d.	$\frac{1}{10}$		
e.	$\frac{3}{4}$		

2. Change the decimals to %:
   a. .05
   b. .8
   c. .025
   d. .0625
   e. .055

3. Change these percents to decimals:

   a. 5%
   b. 75%
   c. $16\frac{2}{3}$ %
   d. 15%
   e. 18%

4. The salad maker is told to use 50% of the lettuce for salad. What fraction of the quantity is to be used?

5. 10% of forty teaspoons was found to have dented handles. How many were dented?

6. Of 5 dozen oranges, 10% was spoiled. How many oranges were spoiled?

7. a. 10% of a student's work was incorrect. What % was correct? There were 50 questions.
   b. How many were right?
   c. How many were wrong?

8. a. 50 cents is ____% of one dollar.
   b. 10% is what fraction of a dollar?
   c. 8% of 32 = _____.
   d. 25% of 400 = _____.

9. a. 11.05 is ______% of 85.
   b. 20% of 6.00 = ________.
   c. 40% of 4000 = ________.
   d. 7% of $842.00 = ________.
   e. $\frac{3}{4}$ of 100 = ________.
   f. 1% of $15.00 = ________.

10. An operator found that by assigning a worker to the job of sorting strawberries, he was able to save 5% of 25 quarts of berries that he had purchased each week. How many quarts would be saved in four weeks?

11. There were 7100 persons who ate in a restaurant in one month. The following month showed an increase of 30% in the number of guests. How many people ate there the second month?

UNIT IV - PERCENTAGE

Application

Lesson No. 2

OBJECTIVE: To learn how to apply knowledge of percentage to working problems in the foods trade.

RELATED INFORMATION:

A. You have been working with problems that have represented expenditures or receipts of food trade establishments.

A successful business man is also interested in knowing how to interpret these figures in percentage.

Many business concerns will have sales where discounts are given in order to sell goods.

You will see advertisements for "pre-inventory" sales and many others. The merchant offers goods at special prices, but he is still able to make a margin of profit.

This procedure can not be followed in the foods trades because this business deals with a product that must be used as soon as it is produced.

Recognizing this fact, you can see how important it is for the food merchant to be accurate, for if he is not, his business will not last long.

Labor cost and overhead expenses must be added to the cost of raw materials to arrive at a selling price. Location of the eating place will affect both of these figures, therefore the percentage of profit will vary.

ASSIGNMENT:

1.

a. Make a detailed list of all of the materials used for a special meal served in the school.

b. Compute the market price of the materials (use daily slips, stock purchase cards, etc.) to find the prices.

c. Add the following percentages to the food cost:
   1. 15% for labor
   2. 1% for overhead expenses
   3. 20% for miscellaneous expenses

   This would be the selling price.

d. If you were serving 30 guests, what would be the guest charge? Make the figure in the unit of 5 or 10, not an odd number as 6 or 9.

2. The materials in a meat loaf amount to 76 cents. Add 25% to this cost. What will be the selling price?

3. Figure the following:

	Food Cost Per Serving	% Profit	Selling Price
a. Macaroni and cheese	.035	15%	
b. Chocolate pudding	.0046	33 1/3%	
c. Swiss steak	.275	40%	
d. Ice cream	.105	75%	
e. Roll and butter	.0425	25%	
f. Fresh green beans	.0215	12 1/2%	

B. Use of Knowledge of Percentage in Proportion of Various Ingredients

Example: There are many foods either concentrated or dehydrated that are used in the preparation of foods. The worker must know how to interpret the directions on the packages.

Concentrated fruit juice - to reconstitute - read the directions for the brand being used.

ASSIGNMENT:

1. Read the directions on a can of concentrated soup. What percentage of water is added to reconstitute the soup?

2. a. Read the directions for reconstituting as dehydrated soup base. How many ounces of base are needed for 16 ounces of water?

   b. Repeat, using a bouillon cube.

3. A recipe for French Dressing requires 75% oil and 25% vinegar. If you were to make four cups of dressing, what quantity of each ingredient would you use?

4. To reconstitute powdered skim milk solids into liquid form, 25% powder is used to ______ % water?

5. One day the cook needed to make pastry flour from all-purpose flour and cornstarch. The directions called for 75% flour and 25% cornstarch. If 16 cups of the mixture were needed, how many cups of each would be used?

6. The law in our state permits the sale of milk of a water content not exceeding 87 1/2%. 3% butterfat is the minimum requirement. What percentage of other materials or milk solids are there?

7. A recipe calls for 3 lbs. fat. The cook was instructed to use 33 1/3% vegetable fat and 66 2/3% butter. How many pounds of each type of fat will be used?

8. Iced tea sold for 10 cents a serving. It cost 20% of the selling price. What did the cost of preparing one serving amount to?

9. The restaurant owner uses a quick method of computing the added cost to the basic food cost for a la carte dishes:

	Price of Table d'hote Dishes	% Increase	Price for A La Carte
a.	19 cents	40%	
b.	29 cents	40%	
c.	1.08	40%	
d.	35 cents	40%	

10. A restaurant with an income of $35.000.00 figured a 34% food cost. What was the food cost?

11. Mark up each of the following price meals to each of the percentages listed. The result will be the selling price.

Meal cost	.63,	.74,	.85,	$1.15
% Increase	45%	50%		32%

The various percentages listed would represent establishments of varied localities and overhead.

12. a. Total the price of all the meats that were used in the school cafeteria for one month.

    b. Find the total cost of all food for that month.

    c. Find the % of the total used for meat.

    d. Find the % of the total used for milk.

UNIT IV - PERCENTAGE

Discounts **Lesson No. 3**

OBJECTIVE: To discover the use of percentage in computing discounts. To learn how discounts can be applied to work in the food trades.

RELATED INFORMATION:

Although the food that is produced in the shop may not be sold at a discount, the manager can take advantage of discounts when purchasing the raw materials, in paying bills within prescribed times.

PROCEDURE:

1. The manager must analyze any offer of discount on purchases. Never buy on price alone. Remember quality will build lasting business.

2. Don't let the salesman rush you with the story that he is double parked or that he has another appointment in ten minutes. Watch offers of goods that may be given at a price under these conditions.

ASSIGNMENT:

1. The vegetable dealer called at 10 A.M. to sell corn at $3.00 per bag (100 ears). Earlier, the price had been $3.50. What would be the % of discount by taking advantage of this offer?

2. Most vendors offer various discounts on bills paid within specified times. What would be the total savings on the following bills? $462.17, $30.54, $2.79, $358.14 -
    a. a discount of 15% on each for payment in 10 days.
    b. 10% in 30 days.
    c. 5% in 90 days.

3. A salesman quoted $27.90 for six cases of canned corn. The customer inquired whether he could have a discount. The salesman agreed that since he was willing to purchase that quantity, he would give him $4.185 discount. What percentage would that equal?

4. The retail price of potatoes is .05 per lb. The restaurant purchases a bag of 100 lbs. at $3.00. What was the percentage of discount given for purchasing the larger amount?

5. Inventory showed that 40% of the coffee order was used in one month. If 60 lbs. had been ordered
    a. how many pounds had been used?
    b. What percentage of the original order remains?
    c. How many pounds?

6. A discount on purchases is frequently given to workers. How much would a worker save by the following purchases?

   2 coffee cakes @ .65 each, $1\frac{1}{2}$ lbs. cooked ham @ $1.35 per lb.

   1 qt. potato salad @ .45

   A 15% discount is allowed on each item.

UNIT IV - PERCENTAGE

Gratuities **Lesson No. 4**

OBJECTIVE: To learn how to use percentage in figuring gratuities.

RELATED INFORMATION:

Many workers in the food industry depend upon tips or gratuities as part of their income.

An efficient worker in the service department is able to make considerable money on tips.

Some establishments request that guests do not tip but a percentage of the total amount that the worker sells to the guest is added to the worker's pay.

A comment was made in a former lesson that a food trade worker is a salesperson. Consider your tip or gratuity as a commission for your selling ability. The better salesperson you are, the greater the tip.

PROCEDURE AND ASSIGNMENT:

1. You are working in an establishment that adds 6% of the sales you make to your wages. Your business for one week amounted to \$519.25. Your wages are \$40.00. How much money will you receive for commission in addition to your wages?

2. A restaurant guest hesitates in giving his order, but the waitress is on the job! Before he has a chance to order a 65 cent hamburger, she makes the following suggestion, "The fried chicken has been very popular to-night and it is mighty good. Would you care to try it?" The customer accepted the suggestion and spent \$1.95. At 15%, what would the tip amount to on each sale? What would be the difference for the larger check?

3. A 15% tip was received on the following sales slips. What was the total of the money received? \$4.95, \$2.60, \$1.35, \$1.25, \$6.40, \$3.85.

4. Wages amounted to \$50.00. What percent of wages was sales commission if the commission amounted to \$2.00.

5. A woman was asked to serve at a buffet supper. She was offered \$10.00 for 2 1/2 hours. She said she couldn't do it unless she was paid 50% more than the offer. How much did she want for her work?

6. A worker lost three days pay at $7.00 per day.
   a. What percentage of his pay did he lose?
   b. What was his salary for six days?

7. A bakery salesperson sold $563.25 worth of baked goods for which a 5% commission is added to his pay. What will the commission amount to?

8. A waitress served a group whose bill amounted to $10.65. $1.60 was left as the tip. What was the % of the tip?

9. A waiter earned wages of $2140.00 for one year. His tips amounted to $1091.40. What was the % of his tips?

10. Four waitresses pooled their tips for the day. The total money in the box amounted to $48.50. They agreed to give the bus boy 1% of the total tips. Two waitresses worked for two meals and each received 25% of the remaining tips. How much did the other waitresses receive as their share?

    a. How much did the bus boy receive?
    b. How much did each of the first two waitresses receive?
    c. How much did each of the second two waitresses receive?

UNIT IV - PERCENTAGE

Achievement Test No. 4

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1. What is the difference between the terms hundred and hundredths?

2. Write 37 1/2% as a fraction. a decimal.

3. Figure the profit on $5000.00 at 150% and at 1.5%

4. If you earn $200.00 per month and spend $15 for uniforms, $7.50 for shoes, $3.50 for hose and $5.00 for other wearing apparel, what percent of your wages was spent for these items? What percent of your wages do you have left? How many dollars will this equal?

5. A business has expenses of $6454.57. The receipts were $10,410.59. What percentage of profit was made?

6. The cost of preparing a serving of apple pie is .08. What should the selling price be in order to make a profit of 75%?

7.
   a. What % of 50 is 5?
   b. What % of 35 is 7?
   c. What % of 48 is 12?
   d. What % of 30 is 3?
   e. What % of 90 is 45?

8. A worker was advised to budget his salary as follows: 10% savings, 25% food, 5% clothing, 10% shelter, 10% entertainment, 15% travel expenses, 10% church, 5% charities, 10% investments. If he earned $325.00 per month, how much would he use for each expense?

9. The selling price of the meals listed below is 40% more than the food cost. Find the food cost. 95 cents, 65 cents, 50 cents, $1.25, 85 cents.

10. 216 oranges cost $6.25. What should the selling price of one orange be to show a profit of 33 1/3% on each orange?

UNIT V - MEASUREMENTS

Review

Lesson No. 1

OBJECTIVE: To recall the terms necessary to the study of the tables of measurements as applied to the work in the commercial foods.

RELATED INFORMATION:

A. Unit of Measure
To measure the quantity of any object, it is necessary to decide on a method of measuring. Whatever is selected is known as a unit of measure.

B. The objects used as units of measure must meet certain specifications of size or volume, which have been established by law. This type of equipment is known as standard equipment.

C. All recipes and formulae are developed by using standard measurements and standard measuring equipment.

ASSIGNMENT:

1. Collect the following equipment from the cafeteria: measuring cup, set of measuring spoons, quart measure, gallon measure, (These articles are examples of standard measuring equipment).

2. Take a coffee cup, a soup spoon and a teaspoon from the dining room. (These articles are not standard measuring equipment).

3. Compare and contrast the articles that you have collected, as to appearance, size.
Fill the measuring cup with water. Pour the water into the coffee cup. Will the coffee cup hold all of the water? Examine the markings on the measuring cup. What do the marks show?

   Test the quantity of water that the standard tablespoon will hold with that of the soup spoon.
Repeat, using the standard teaspoon and the regular teaspoon.

   Fill the quart measure, using the standard measuring cup. How many cups of water were needed to fill the measure? How did the number of markings on the quart measure compare with the number of cups that were needed to fill it?

   What would your conclusions be regarding the use of standard measuring equipment?

D. To save time in quantity food preparation, many ingredients are weighed.
The units of measure used for this work are grams, ounces, pounds.

ASSIGNMENT: Examine the gram scales.
Examine the scales registering ounces and pounds.
Examine a portion scales.

1. Weigh one gram of flour.

2. Weigh one ounce of flour.

3. Weigh one pound of flour.

4. Compare the quantities of one gram of flour with one ounce of flour. Measure each unit of weight with a standard measuring spoon. How many tablespoons in one gram of flour? one ounce?

E. Some materials are measured according to other standard units such as, peck, bushel. You will find that these units must have specific weights.
For example, a bushel of green peppers weighs 25 pounds.
By consulting tables of specifications, you will be able to learn the various weights required for certain fruits, vegetables and other packs.
Specifying weights for certain packs has been found to give a more accurate measurement.

ASSIGNMENT: Consult your text book for a "A Chart of Comparative Weights and Amounts of Fresh Foods".

Select three examples for class discussion.

F. Temperatures: The standard unit for measuring temperature is the degree. A small o to the upper right of the figure is used to designate the degree. (80°)

The standard piece of equipment for measuring temperature is the thermometer. There are two main types of thermometers - the Fahrenheit and the Centigrade.

F. is used to represent the Fahrenheit thermometer on which 32° records the freezing point, and 212°, the boiling point of water.

C. is used to represent the Centigrade thermometer, where the freezing temperature is shown by 0 and the boiling point is 100.

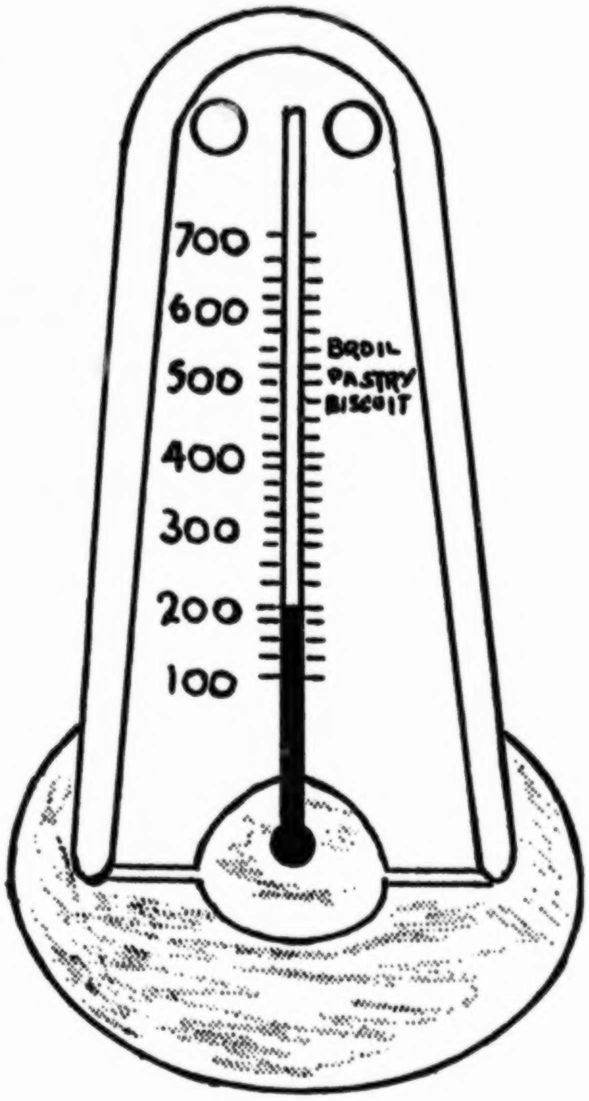
Although the Fahrenheit thermometer is used almost exclusively in the kitchen, it would be well for you to examine a centigrade thermometer.

Various thermometers are used for different purposes in the kitchen. All are worked out on the Fahrenheit scale.

a. candy thermometer, fat thermometer
b. the oven thermometer
c. refrigeration thermometer

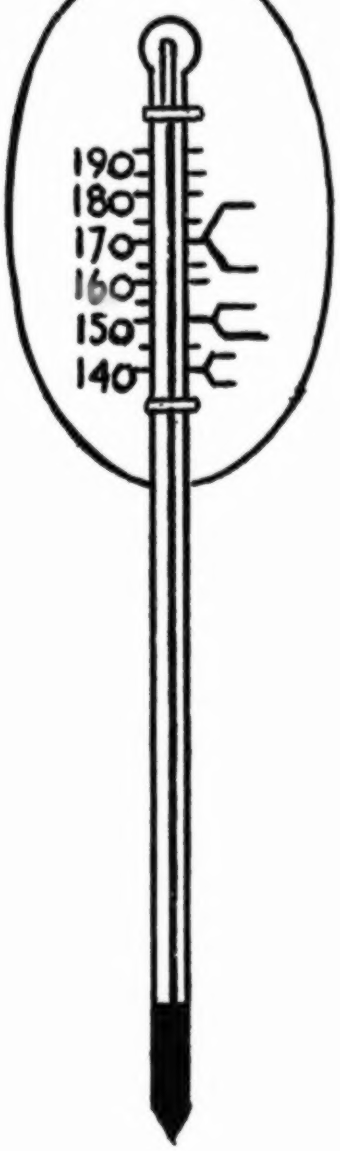
Many pieces of equipment are constructed with thermostats - instruments that control temperatures. The scale of degrees or temperatures register the same as on a thermometer. This instrument has the advantage of not only registering temperatures, but controlling them. However, a thermometer is needed to check the thermostat should it get out of order.

Thermostatically controlled equipment is becoming a necessary part of every foods establishment. It takes the guess-work out of food preparation, is a safety control, and also helps to save food from over-cooking, thus controlling the quality of the finished product.


700
600
500
400
300
200
100
BROIL
PASTRY
BISCUIT

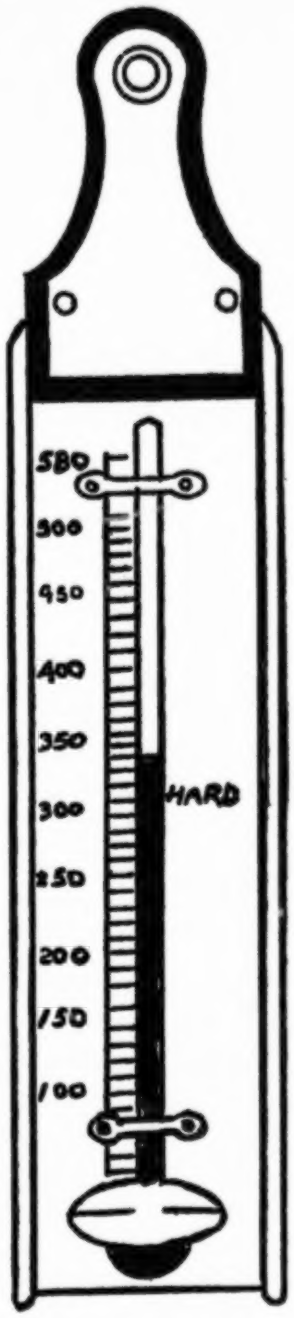
OVEN THERMOMETER

Used for testing temperatures of oven heat.


190
180
170
160
150
140

MEAT THERMOMETER

Used to determine the internal temperatures of meats.


580
500
450
400
350
HARD
300
250
200
150
100

CANDY AND FAT THERMOMETER

Used for testing temperatures of sugar syrups, candy and deep fat frying

Collect the various types of thermometers from the kitchen so that you will be able to recognize each.

Notice the scales on each thermometer differ. Also note that certain thermometers will register much higher temperatures than others.

There is another instrument used to determine temperatures, when steam is used for cooking, called a pressure gauge. Gauges are marked in various ways to indicate pressures as well as temperatures.

Warning Always be certain of the directions for operating any equipment where steam is used, as it can be dangerous ! ! !

ASSIGNMENT:

Inspect the cafeteria equipment to learn the different types of thermometers or thermostats that are used.

If there are no pieces of equipment available to illustrate the use of pressure gauge, you may be able to see it on the heating equipment in the school or you may see it when you visit the Hotel Show or a commercial kitchen.

G. Measurement of time is also very important to the trade. Tested recipes indicate the time for cooking as part of their directions.

Seconds, minutes, and hours are the units used in the preparation of foods.

Days, weeks, months, years are the additional units used in computing various phases of business operations.

H. There is another unit of measurement that foods students will want to understand - the calorie. This is a unit of heat or energy derived from the foods consumed.

ASSIGNMENT:

Consult your text book for "Daily Food Needs".

Find the number of calories that a person your age requires daily.

Find the number of calories that a man doing heavy work needs daily.

Find the number of calories that a woman doing light work needs daily.

Find the number of calories that a child one year old needs daily.

Compare the number of calories need for each of the examples. How do you account for the difference in the number of calories that each person requires?

REVIEW:

1. a. Define the meaning of standard equipment.
   b. Why should standard equipment be used?

2. The units of measuring materials by weight are ____, ____, ____

3. You may purchase 10 pounds of potatoes or 1 bushel of potatoes. What two units of measurements are represented here?

4. The boiling point of water is _____F. _____C.

5. _____ represents the internal temperature for 10-12 pound turkey. (Consult the meat thermometer).

6. Which is more advantageous to the customer? To order a bushel of spinach or 35 pounds of spinach. Give the reason for your answer.

7. What should the internal temperature of a 12-15 lb. standing roast of beef be to produce a rare roast?
(Consult the meat thermometer).
How many minutes per pound should the meat be cooked to produce a rare roast?
What would be the total time for a roast of the weight listed to be cooked?
If the meat is put in a pre-heated oven at 9:45 A.M., at what time should the meat be ready to serve?

8. How do the temperatures in Problem 7 compare with those of Problem No. 5?

Reading Thermometers

Lesson No. 2

OBJECTIVE: To learn how to read the various thermometers used in the commercial foods kitchen.
To be able to interpret the mathematics of the thermometer in the preparation of foods.

RELATED INFORMATION:

Accurate measurements, care in combining ingredients and use of standard recipes, as well as quality ingredients are some of the requisites of a uniform product. However, if the product is not cooked properly, it will not be acceptable.

Various thermometers are helpful and indispensable in food preparation.

PROCEDURE:

A. Using the candy thermometer. This instrument will be used in making cake icings, fillings, jelly, as well as in making various confections.

1. Examine the candy thermometer and make a record of the various temperatures, as well as the descriptive adjective that corresponds to each temperature.
   Note: The higher the temperature of a sugar mixture, the more brittle the finished product. This continues until all of the moisture is driven off and the mixture becomes a black mass of carbon which, of course, will not be usable in the foods trade.

   Icings are usually cooked to the "fondant" stage or "soft". Find the temperature that corresponds to this description.

2. Take one cup sugar and $\frac{1}{3}$ cup water. Stir until the ingredients are well mixed. Put the thermometer into the syrup. Heat on a low flame until the mixture reaches 238°F. At what temperature did the mixture remain for some time, before reaching the required temperature?

3. Continue to cook the syrup, checking the temperatures at the various stages described on the thermometer.

   CAUTION: REMEMBER THAT THIS MIXTURE IS VERY HOT. PROTECT YOUR HANDS AND DO NOT ALLOW ANY OF IT TO TOUCH YOUR SKIN. USE A HEAVY DRY POT HOLDER AND HAVE A DRY CLOTH ON WHICH TO PLACE THE THERMOMETER WHEN IT IS REMOVED FROM THE SYRUP. LET THE THERMOMETER COOL BEFORE PLACING IN WATER.

4. What finally happens when the syrup is cooked beyond the "brittle" stage?

5. Did this change take place slowly or rapidly? What did you learn from this exercise about the changes that take place in sugar cookery?

B. The Deep Fat Thermometer

1. Compare the lowest and highest temperatures on this thermometer with that of the candy thermometer.

2. Consult a cook book and find the recommended temperatures for frying the following in deep fat: chicken croquettes, fillet of flounder, crullers, French fried potatoes.

   Put the required fat into a frying kettle, put on a low flame and place the deep fat thermometer into the kettle. When the temperature of the fat reaches the required temperature, frying starts. Check the length of time required for the fat to reach each of the desired temperatures.

   Experiment by frying one of the foods listed. After the first batch has been fried, check the temperature of the fat. What has happened? What was the cause of this? What must happen before more food is fried? List the number of minutes or seconds for the fat to recover the temperature.

   PRECAUTION: HOT FAT CAN CAUSE PAINFUL BURNS.
   HOT FAT CAN ALSO CAUSE FIRES.
   WORK CAREFULLY.

   When the fat becomes too hot, what two conditions exist? Fat temperatures that are too high spoil the flavor of foods as well as take the "life" out of the fat. Fat that is not hot enough is soaked up by the food. This results in a greasy, indigestible product.

   These two points should impress you with the importance of frying foods at the right temperatures.

   Newer and more improved equipment for deep fat frying has thermostatically controlled temperatures.

C. The Meat Thermometer is inserted into the thickest part of the piece of meat and the meat is cooked until the internal temperature of the meat reaches the desired degree.

Inspect the markings on the meat thermometer and notice that various kinds of meats require different temperatures.

Which requires a higher internal temperature - rare roast beef or fresh pork?

D. Oven Thermometer and Thermostat. Most ovens are equipped with a thermostat which controls and regulates oven temperatures. A portable oven thermometer is usually available to check the thermostat.

Set the thermostat on the bake oven to 400F. Set a portable oven thermometer on the center of the shelf of the oven. In 15 minutes, check the thermometer to see if it and the thermostat agree.

Write the figures that represent the various temperatures that are described on the thermometer, e.g., what figure corresponds to the word "moderate". Why would it be more accurate to give the figure for the temperature especially when writing recipes?

E. The Refrigerator Thermometer. Many refrigerators are equipped with regulators so that temperatures can be controlled. There are also portable thermometers which can be used to determine the temperature of the refrigerator.

Using a portable refrigerator, check the temperature in the morning before the day's work begins, again at noon, and again at the end of the day. What have you learned about the effect of opening the refrigerator door on the temperature? 35° - 40° is the desirable temperature for keeping food cold. 50°F. is conducive to bacteria growth and is not desirable.

Set the thermometer in the freezer or in the ice cream cabinet. Record the temperature after 30 minutes have elapsed. How does the temperature compare with that of the refrigerator?

F. Dishwashing Machine Thermometer. Board of Health recommends that the temperature of water for dish washing in a machine be 140°F., for rinsing 180°F.

Check the temperature of the water at the beginning of the dish cleaning period and at the end. Record your findings.

ASSIGNMENT:

1. Check the temperature required for soft icing.

2. How do the internal temperatures for the following compare:

    a. roast beef - medium
    b. roast beef - well done
    c. fresh pork
    d. roast leg of lamb

3. Why are the terms like "hot oven", "moderate oven" inaccurate? What would be the exact temperatures for these terms?

4. If you were using an oven equipped with a thermostat, at what temperature would you set it for "hot"? "slow"?

5. Which is higher, the boiling point of water or 236°F.? How much?

6. A reading of the refrigerator the first thing in the morning was 38°F. At noon it was 52°F. How would you account for the higher temperature?

7. A piece of meat weighing 16 lbs. before cooking lost 1 lb. 3 oz. when cooked at 325°F. At 400°F. in the same length of time an identical piece lost 2 lbs. 1 oz. What would be your deduction as to the effect of higher temperatures on meat shrinkage? What would be the cooked weight of the two pieces of meat?

UNIT V - MEASUREMENTS

Using Scales

Lesson No. 3

OBJECTIVE: To learn the importance of accuracy in using various types of weighing scales as used in the foods trade.

RELATED INFORMATION:

Various types of scales are used in the foods trades.

1. Platform scales - at the point of delivery to weigh cases, barrels, etc.
2. Kitchen scales - used for weighing ingredients and small packages.
3. Portion scales - used to weigh portions of food - especially in diet kitchens.
4. Computing scales - convenient when figuring portion costs.

PROCEDURE: The scales that are used in a food establishment can be used as a check on deliveries. It is always wise to check all deliveries.

Platform Scales

Balance the scales before weighing ingredients.
Always report any variation - shortage or overage immediately.
This work is usually taken care of by the store room clerk.

Kitchen Scales - used for weighing ingredients.
This is a time saving method as well as an assurance of obtaining more uniform results with a quantity recipe.

ASSIGNMENT:

A.

1. If a platform scale is available, weigh a bag of sugar or a bag of flour (100 lbs.). Balance the scale and after checking the weight on the delivery slip, find out if it agrees.
2. Weigh a case of eggs - check for size (small, medium, large). Does the weight agree with the prescribed weight?
3. Repeat No. 2 using a basket of spinach, crate of lettuce (note the kind of lettuce), case of #10's standard tomatoes, barrel of dish machine powder.

   Check to see if the figures agree with those on the specification list. You will find information charts of "Comparative Weights" in your institutional books.

B. Kitchen Scales Procedure - balance the scales.

1. Weigh a nine inch mixing bowl, a six inch mixing bowl. Mark the weight of each bowl.

2. Put enough flour into each bowl to make one pound of flour. What must you remember when you are weighing the flour? Can you suggest two methods of doing this?

3. a. Weigh 1 lb. carrots (A.P.) as purchased, tops, etc.
   b. Remove the tops. Weigh again. What is the difference?
   c. Suppose you bought 2 dozen bunches of carrots. What would be the waste?
   d. Multiply this by the cost per pound to determine the money that you would be losing.

4. Sort enough potatoes of uniform size to make 25 lbs. Put them into the paring machine. Eye them after being pared. Weigh the potatoes again. Any difference? Mark down any loss. Cost of one pound. Cost of lost weight.

5. a. Weigh an uncooked smoked ham, leg of lamb or standing rib roast of beef. Record the weight and check with the dealer's bill.

   b. Cook the meat. Weigh again after cooking. Record the weight. Figure the number of pounds or ounces or both of shrinkage.

   c. Bone the meat. Weigh the bones and other trimmings. More loss!

   d. Weigh the boned meat.

   e. Multiply the number pounds of loss by the cost per pound. Add this to the bill that was rendered for the meat as delivered. What is the present cost per pound?

6. a. Weigh six head of iceberg lettuce.

   b. Weigh six head of Boston lettuce.

   c. If you are purchasing the lettuce by weight, which would be the better buy?

   d. Trim the leaves from both types of lettuce that cannot be used for salads. Weigh the trimmings. Any loss?

Purchasing by Weight vs. Count   Lesson No. 4

OBJECTIVE: To ascertain the value of purchasing by weight or count.

RELATED INFORMATION:

Institutional purchasing is usually done on the basis of weights rather than by count.

You will be better able to appraise the two methods of purchasing with some experience in figuring cost and then make a comparison.

ASSIGNMENT:

1. Check the weight of a case of small, a case of medium, and a case of large eggs.
    - a. How many dozen are in each case?
    - b. Compare the current market price per case for each size egg.
    - c. What is the price per egg of each size?
2. On which case would the restaurateur make more money - selling a case of medium or a case of large eggs. The eggs are to be used on an a la carte breakfast menu. Consult a menu from your locality for the price of a single or two eggs.
3. A box of 150 apples (for table - fancy) sells for $7.50. The weight is 48 lbs.
    - a. What is the cost per apple?
    - b. What is the cost per lb.?
    - c. What would be the approximate number of apples in one pound?
    - d. If the apples were sold at 10 cents each, what would be received for the box of apples?
4. Corn per bag of 100 ears costs $4.00, or it may be purchased for 65 cents per dozen. Show by figuring which is the better buy.
5. Which would be the better buy?
    - a. 1 crate of 27 cantaloupe @ $5.40 per crate
    - b. 1 crate of 36 cantaloupe @ $7.92 per crate
    - c. Figure the cost per cantaloupe of each size.
    - d. What would be the cost per serving if eight servings were made from each of the 27 cantaloupes?
    - e. What would be the cost per serving if six servings were made from each of the 36 cantaloupes?
    - f. Each serving is to be offered to the customer for 15 cents per serving. What would be the profit from each box?
    - g. Which is the better buy? Why?

6. Check the weight of a stalk of bananas, a hand of bananas. Consult the market price of each unit.

   a. What will determine the number of bananas in one pound? Weigh out one pound and figure the cost of each banana.

   b. Since you cannot sell bananas by weight to a restaurant customer, add 25% of the cost of one banana to arrive at the selling price. What will be the charge for one banana?

7. Look up the following units - the weight of
   a. till of tomatoes
   b. lug of tomatoes

   If the price of a till were $2.50 and the price of a lug were $5.75, which would be the better buy? Why?

8. Fresh plums are packed in baskets with the following description - "4 x 5"

   a. Find out what this description means.

   b. Find out how many baskets there are to a box or a crate.

   c. Figure how many plums this carte would yield.

   d. At $11.50 per box or crate, what would be the cost per serving if three plums are given to a customer?

   e. How many servings can be made from this pack?

UNIT V - MEASUREMENTS

Tables Lesson No. 5

OBJECTIVE: To recall the various tables of measurements especially those used in the foods trades.

RELATED INFORMATION:

The following tables that you learned in the lower grades of school will be used for many of the jobs that you will do in foods work.

PROCEDURE: Review of the various tables and parts of the tables that will be needed for foods work.

A. Table of Liquid Measure

3t. (teaspoons = 1 T. (tablespoon)

16 T. = 1 c. (cup

2 c. = 1 pint (pt.)

4 c. = 1 quart (qt.)

4 qts. = 1 gallon (gal.)

B. Table of Dry Measure

3 t. = 1 T.

16 T. = 1 c.

16 ounces (oz.) = 1 pound (pd.)

2 c. = 1 lb. sugar

2 c. = 1 lb. fat

4 c. = 1 lb. flour

Note: The measurements listed are the ones that you will need to memorize. There are other tables of Equivalents in your foods text books. You will use these when computing costs of recipes.

C. Table of Weights

28.35 grams (gr.) = 1 oz.

16 oz. = 1 lb.

2 c. = 1 lb. fat or sugar

4 c. = 1 lb. flour

D. Table of Temperatures

0 degrees Fahrenheit = 0°F.

32°F. = freezing

212°F. = boiling point

E. Table of Time

60 seconds (sec.) = 1 minute

60 minutes = 1 hour (hr.)

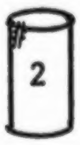
24 hours = 1 day

30 days = 1 month

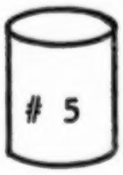
12 months = 1 year (yr.)

F. Size of Cans in which Food is Purchased for Food Establishments

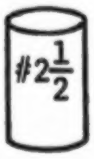
1. Learn to recognize each size can.
    a. Use the model cans to learn sizes.
    b. Cans of various sizes may be found in the cafeteria store room. Select a variety, check weights and contents and compare with the weights and contents on the standards.



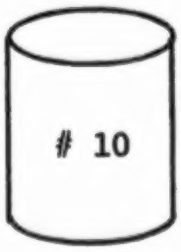
$2\frac{1}{2}$ cups
20 ounces
24 to the case



7 cups
3 lbs. 8 oz.
12 to case



$3\frac{1}{2}$ cups
28 ounces
24 to the case



13 cups
6 lbs. 10 oz.
6 to case

ASSIGNMENT:

1. Cut a one pound print of butter or margarine or lard in half:

   a. Each piece will be what part of a pound?
   b. Each piece will be how many ounces?
   c. Each piece will be how many cups?
   d. Each piece will be how many tablespoons?

2. a. One pound of fat = ______ cups.
   One half-pound of fat = ______ cups.

3. a. One cup of fat = ______ tablespoons.
   b. One pound of fat = ______ tablespoons.

4. One tablespoon of butter = ______ teaspoons.

5. How many standard measuring cups will one gallon of soup yield?

6. a. Which weighs more, one pound of sugar or one pound of flour?
   b. How many cups in one pound of sugar? one pound of flour?

7. The temperature of the ice cream cabinet registered minus 10 degrees F. Is this above or below freezing? On what do you base your answer?

8. A turkey weighing 18$\frac{3}{4}$ lbs. was to be cooked 12 minutes per pound. In how many hours and minutes should the turkey be cooked?
   If the turkey were put into a preheated over at 9 A.M., at what time should it be taken out if cooked according to the above directions?

9. A No. 10 can yields ____ cups, a No. 2$\frac{1}{2}$ can ____ cups, and a number 5 can ____ cups.
   If one can of each size was used to make a fruit punch, how many quarts of punch would you have?

10. a. $\frac{3}{4}$ cup flour = ____ T. flour.
    b. 1$\frac{1}{2}$ quarts of vinegar = ____ cups of vinegar
    c. 2 cups flour = ____ oz. flour
    d. ___ degrees F. = boiling point of water.
    e. 3 cups of flour = ____ T. = ____ oz. = ____ lb.= ____

UNIT V - MEASUREMENTS

Achievement Test No. 5

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1. Define the term "unit of measure".

2. What type equipment does one need in order to use the "units of measure"?

3. How does a "gram" compare with an "ounce"? Select one food from the table of food composition to illustrate. Weigh one gram of flour and 1 ounce of flour. Measure, using a tablespoon. Compare.

4. a. Name the various thermometers used in the food trade.
   b. The unit of measure on a thermometer is called a ______.
   c. A _____ regulates temperatures, a _____ registers temperatures.
   d. Why are thermometers necessary for the foods trade?

5. a. What is a calorie?
   b. What is this the unit of measure for?
   c. Why do people "count calories"?

6. Two No. 10 cans of peas weighed the same. When the cans were opened, one had 8 oz. more peas than the other. What term is used to describe the weight after the liquid is removed?

7. Potatoes 30 lbs. A.P. (as purchased) were peeled and eyed. There was a loss of 3 lbs. 6 oz. What was the edible portion (E.P.)?

8. 25 lbs. of fat was put into the frying kettle. At the end of the day 19 lbs. remained. How many pounds of fat was used? If it costs 15 cents per pound to get potatoes ready for frying and the fat cost 19 cents per pound, what would be the cost of frying the 20 pounds of potatoes that were used on that day?

9. How many 3-ounce portions would the above potatoes yield?

10. Compare the cost of the following (cost per egg):
    a. 1 dozen small eggs at 45 cents per dozen
    b. 1 dozen medium eggs at 55 cents per dozen
    c. 1 dozen large eggs at 65 cents per dozen

UNIT VI - ACCOUNTS

Wages

Lesson No. 1

OBJECTIVE: To learn how to apply the principles of mathematics in computing a worker's wages based on different time units.

RELATED INFORMATION:

Constant repetition has been made to making money throughout your work in related mathematics. In this lesson you will think of the money that you will make.

The amount of money that you will make will depend upon many things, such as, ambition, attendance, application, and experience.

We will consider wages only in this lesson. Tips were discussed in an earlier lesson.

Wages in a food establishment are based on the kind of job that you have, the experience and the responsibility connected with the job. A beginner cannot expect the same rate of pay as a worker who has been on the payroll for years.

It costs your employer money to train you, so for a time you are a "liability" to the establishment not an "asset".

Wages may be paid on different units of time: hour, day, week, month, year. Find out during your interview just what unit of time will be used to figure your pay.

ASSIGNMENT:

1. Find out what the rate per hour is in your locality for restaurant workers. At eight hours per day, 5 day week, what would your wages be at this hourly rate?

2. The store room clerk was paid $60.00 per week. He worked 6 days, 8 hours per day. What was his rate of pay per hour?

3. The kitchen manager received a salary of $250.00 per month. She worked 6 days per week, 8 hours per day.
    a. What is her rate of pay per day (30 days to the month)?
    b. Pay per week (4 weeks to the month)?
    c. Pay per hour?

4. The chef was paid $150.00 per week. He worked 50 weeks. What did he receive for that period of time?

5. A hostess was hired at $150.00 per month. At the end of three months, she was promised a 5% increase.
    a. What would her wages be?
    b. In six months there was to be a 10% increase of the existing salary and the following year she was to receive a 20% increase. What would her salary be per month at this time?

6. There are certain deductions authorized to be taken from your wages:
    a. Social Security and Withholding Tax are deductions authorized by the Federal Government.
    b. Other deductions such as - hospitalization, savings plans, government bonds, are more or less voluntary.
    c. Sample form for your study of the Government deductions will be provided.
    d. Investigate the laws pertaining to unemployment insurance.
    e. The money received after the various deductions is known as "net pay" but it is often termed "take home pay".

7. The dish machine operator is paid $1.10 per hour. What would his wages be for the week if his time card read as follows?
NOTE: This station often requires a person to work a "split shift".

Monday	7:30 A.M.	to	10:45 A.M.
	11:30 A.M.	to	3:15 P.M.
	5:00 P.M.	to	8:00 P.M.
Tuesday	8:45 A.M.	to	10:45 A.M.
	12:15 P.M.	to	3:15 P.M.
	5:30 P.M.	to	7:30 P.M.
Wednesday	7:45 A.M.	to	10:45 A.M.
	11:45 A.M.	to	2:15 P.M.
	5:30 P.M.	to	7:30 P.M.
Thursday	8:00 A.M.	to	10:40 A.M.
	12:00 M.	to	3:00 P.M.
	5:00 P.M.	to	8:00 P.M.
Friday	8:30 A.M.	to	10:15 A.M.
	11:45 A.M.	to	2:15 P.M.
	5:30 P.M.	to	7:45 P.M.
Saturday	9:00 A.M.	to	12:30 P.M.
	1:30 P.M.	to	4:30 P.M.

8. Compute the following: 35 hours @ $1.00 per hour.

Deductions

Withholding tax	$4.35
Social Security	.35
Hospitalization	.90

What is the net pay?

9. In No. 8 what % of the whole pay was deducted?

10.

Salary	$575.00
Deductions	20%
Net Pay	_______?

Financial Records

Lesson No. 2

OBJECTIVE: To understand various financial accounts necessary for the operation of food trade establishments.

RELATED INFORMATION:

Studies made by the Department of Commerce as well as by private groups show that many small food trade establishments fail because of either inadequate records or none at all.

Records can be very simple. They need not be longer or more involved than the following questions.

1. How much business am I doing?
2. How much net profit did I earn?
3. What were my food costs?
4. What were my other expenses?
5. What is my investment in my establishment?
6. What are the trends in my sales, expenses and profits- or how am I progressing from year to year?
7. How much stock do I have?
8. How much money do I owe - wholesale dealers and others?
9. How much cash do I have on hand and in the bank?
10. How does my establishment compare with others of the same type?

If a business man can answer these questions, he knows if everything is right or wrong. He knows if there are any unfavorable conditions and is in a position to take care of them.

ASSIGNMENT:

1. What evidence is available to show that poor records are the rule rather than the exception?

2. What are the results of poor records?

3. Express the following statement in another way, "What are the trends in my sales, expenses and profit?"

4. What do you understand by "net profit"?

5. What value is it to an operator to compare his establishment with others of the same type?

UNIT VI - ACCOUNTS

Receipts From Sales Lesson No. 3

OBJECTIVE: To learn how to keep records of moneys received from various sources in the food establishment.

RELATED INFORMATION:

Would you take a job without knowing how much money the job would pay?

What would you think of a food shop owner who had no idea of how much money he received every day?

PROCEDURE: The cash register is one way that a business man can get a fairly accurate account of the money he has taken in each day.

1. The receipts minus the amount of cash or change in the cash drawer at the start of the day's business should equal the amount of money taken in and balance with the cash register tape.

2. There should be a method of determining total receipts from various sources, viz. from goods sold over the counter such as baked goods, candy, tobacco, etc.

3. It is important that this information be broken down into different classifications since some of the items may be in on a consignment or commission basis.

4. The record of daily sales should be entered into a simple cash book. The operator will then be able to make comparisons with receipts of other years, same month and day.

ASSIGNMENT:

1. What does the term consignment mean? What are some materials that might be sold in a restaurant on this basis? Why would an operator need to know whether this business was yielding a profit?

2. Below is a sample of receipts for one week's business and one method of grouping them.

Meals	Beverages	Candy	Tobacco	Miscellaneous
$425.46	$ 14.37	$ 4.80	$ 5.80	$ 4.20
369.54	9.23	5.07	7.64	4.07
521.06	15.46	3.25	14.21	5.10
471.28	5.04	2.09	6.75	4.01
415.48	10.25	4.25	10.65	4.15
469.53	11.35	5.26	11.25	5.68

Copy the above figures and total each column.

3. If the owner receives 15% commission on the sale of tobacco and candy, what is the actual total that he can add to his own receipts?

4. Refer to the cafeteria records for the current year and the previous year. Check the total receipts for the year. Compare the total monthly receipts of each year. Also check the number of sales made on the days or the periods that you compare? How may any differences be explained?

5. A business man finds that his cash receipts were as follows: $74.96, $207.32, $112.52, $102.43, $97.32, $106.53

   a. What are the total receipts for the week?
   b. If he allows a 45% of each day's receipts for food cost, how much money may he allot for food each day?
   c. What would be the total food allowance?

UNIT VI - ACCOUNTS

Orders and Requisitions

Lesson No. 4

OBJECTIVE: To learn how to work out orders and requisitions.

RELATED INFORMATION:

Care in food purchasing can mean success or failure in this business.

Price is not the only consideration when purchasing food materials, quality should be the first consideration.

Also, the buyer must consider his needs. Stock piled up in the store room represents money. This is really a liability not an asset.

PROCEDURE: Purchasing food materials.

1. Select several dealers.
2. Have a list of materials ready that you will want to purchase.
3. Watch so-called "inducement prices".
4. Be well informed on the specifications you will want your purchases to meet.

ASSIGNMENT:

A.

1. Perishables (fruits, vegetables, meats are purchased semi-weekly). The following sources should be consulted before purchasing:

    a. Market reports.
    b. Visit wholesale markets to see what is available.
    c. Build menus around foods that are "in season" or are good buys.

2. Make a list of foods that are ordered every week.

3. Compare present cost with the cost of different seasons, e.g., Florida oranges (February - May). How do the prices compare? You may consult the prices in the day book.

4. Lettuce is $2.50 per dozen heads.
   Cabbage is $2.25 per bag.

    a. Find out how many lbs. are in a bag of cabbage.
    b. A head of lettuce weighs approximately one pound.
    c. How would the cost of the two vegetables compare in price per lb.?
    d. How could a restaurant operator use these two items to advantage?
    e. Consult the market price of the following greens: chicory, escarole.
    f. How do the prices compare with the price of lettuce?
    g. How may the restaurant operator take advantage of this?

Staples are materials that can be stored for some time without spoilage. Ordering staples varies with the size of the establishment. In some operations the order for staples is made on an annual basis. This method is rather difficult and it means the outlay of a great deal of money, so most restaurants order staples on the average of once a month.

ASSIGNMENT:
B.

1. An operator has prepared the following order. Check these price quotations on case lots from two wholesale houses. Lists are available in the cafeteria.

ARTICLE	QUALITY	UNIT COST	TOTAL
2 cs. 6/10 cut green beans	choice		
3 cs. 6/10 peas #4 sift	choice		
5 cs. 6/10 tomatoes	standard		
1 cs. 6/10 apricots, peeled halves medium syrup	choice		
1 cs. 6/10 pear halves Bartlett 35/40 medium syrup	choice		
1-100 lb. bag all purpose flour	Gold Medal or equal		
1-100 lb. bag granulated sugar			

Furnishings and Equipment The cost of equipment and furnishings is listed as a capital expense (original cost). As new equipment is developed and as furnishings and equipment become obsolete and wear out, new will have to be purchased.

ASSIGNMENT:
C.

1. A restaurant owner decided to redecorate the dining room.
   Painting cost $350.00
   Draperies - 40 yards of material @ $1.25 per yard
   Cost of making draperies $25.00
   New hardware for hanging curtains $5.75

   a. What would be the total cost of the draperies?
   b. If the owner decided that he would also purchase new floor covering for $285.00, what would be the cost for all the new decorations?
   c. He planned to charge 1/3 of the cost of this work to the current year's expenses. What would this amount to?

2. New Equipment. Deep fat fried foods are becoming very popular. An operator decided he would investigate the cost of a new frying machine. He found the price of the machine to be $575.00. If the fry kettle could be used for ten years, how much would he charge to his expense account for each year?

3. Paper Goods. Frequently the vast amount of paper goods that is used is often forgotten. Figuring the cost of this item will enlighten you as to the money that is involved in this item.

   Annual cost of paper goods amounted to $413.74. If a restaurant operates 302 days per year, what would be the daily cost of paper goods?

4. Laundry is another expense that can cause a leak in profits.

   The average charge for laundry was $58.55 per week. What was the cost for fifty weeks?

5. Heat, light, water, telephone, rent, licenses, taxes, cleaning supplies, stationery are among items listed as operating expenses.

   Look through the annual requisition for cleaning and paper supplies. List the expenditures that were made for these items.

UNIT VI - ACCOUNTS

Inventories **Lesson No. 5**

OBJECTIVE: To become familiar with computing inventories.

RELATED INFORMATION:

An inventory is a list of items on hand. The inventory count should be taken periodically.

ASSIGNMENT:

1. Prepare an inventory sheet with the following headings:
   Item Unit Cost Value
   List all of the canned goods on hand in alphabetical order.
   Put in the unit price. Take this from the requisition sheet.

2. Figure the value of the following items. Make an inventory sheet for this.

2 cs. 6/10 cherries Royal Anne	@ $10.50 per case
4 cs. 6/10 peas	@ $ 6.30 per case
1 cs. 6/10 sauerkraut	@ $ 3.75 per case
1 cs. 12/66 oz. tuna flakes	@ $11.50 per case
1 cs. 12/26 oz. jello	@ $ 3.85 per case
2 M. paper doilies	@ $ 2.25 per M
1/2 cs.-10 M. napkins	@ $ 7.40 per case
2 1/2 cs. 12/5 grapefruit juice	@ $ 3.65 per case

3. Find out the total value of the above inventory.

4. If you were a manager, what items would you order on the basis of the quantities listed on the inventory?

5. Make out an inventory sheet like the sample and list all of the supplies in the store room. Make classes of goods, such as, canned vegetables, canned fruits, paper goods, etc., in alphabetical order.

6. Fill out the unit cost.

7. Figure the value of the inventory.

8. Consult the inventory of the previous month to find the unit cost.

9. Subtract the total found in No. 7 from the total of the previous month.

10. Add the figure representing the expenditures on the inventory to the other food costs to arrive at the total food costs for the month. What is the total?

UNIT VI - ACCOUNTS

Records **Lesson No. 6**

OBJECTIVE: To learn how to use different types of business records.

RELATED INFORMATION:

A foods trades business should make records of various types of business deals. To do this special forms may be used.

PROCEDURE: Prepare a form like the sample which is called an "Analysis of Cash Payments".

ANALYSIS OF CASH PAYMENTS

	(Month)		(Year)								
Date	Cash Paid	Food Purchases	Salaries & Wages	Laundry	Supplies	Repairs	Heat Light	Water	Rent	Tel.	Other
1		160.06				45.00			115.00		
2		-		8.75						35.00	
3		125.25	205.46								
4		-			5.88						
5		114.63					75.00				
6											
7		74.88									
8			101.23		5.40	2.69					15.00
9		43.27									
10											
11											
12											
Total											

ASSIGNMENT:

1. Compute the totals of each column. The total of the cross column when added together should equal the total of cash paid.

2. A cash disbursement book provides a record of cash expenditures. Below is a sample of one method of preparing a disbursement book. Total the disbursements.

CASH DISBURSEMENTS RECORD BOOK

(Year)		Firm		
(Month		Sexton	120.46	Check No. 47
		Mary Jones	25.57	Cash
		Consolidated Laundry	18.50	Cash
		Freight Forwarding	17.82	Check No. 48

3. Prepare a cash disbursement sheet for the following. Total the expenditures.

Cunningham Brothers	$22.50	check No. 214
Louis Ender	54.00	check No. 187
Gildersleeve	141.51	check No. 213
Bull Markets	49.76	cash
Dairylea	182.00	check No. 212
Ambrose	61.10	check No. 211
Sunshine Biscuit Co.	23.17	cash

4. What benefit would these records be to a business concern?

5. What problem would you feel that a small business operator would encounter in working out these forms?

UNIT VI - ACCOUNTS

Business Forms - Profit and Loss Statement Lesson No. 7

OBJECTIVE: To learn the importance of a profit and loss statement and how to prepare a balance sheet.

RELATED INFORMATION:

In any business two financial statements are necessary:

1. a profit and loss statement and
2. a balance sheet.

A. The profit and loss statement summarizes business as follows:
Sales of food, less cost of food sold = gross margin.
Gross margin, less total operating expenses = net profit.

A typical profit and loss statement for one month may read as follows:

Sales			% of Sales
Sales		$2,000.00	100
Food cost			
Inventory beginning	$ 200.00		
Food Purchases for the month	850.00		
Total	$1050.00		
Less final inventory	150.00	900.00	45
Gross Margin		$1,100.00	55
Operating Expenses			
Salaries and Wages	600.00		30
Rent	140.00		7
Laundry	20.00		1
Paper and cleaning supplies	20.00		1
Utilities	60.00		3
Replacements, repairs, and maintenance	40.00		2
Depreciation	40.00		2
Advertising	10.00		0.5
Taxes and Insurance	40.00		2
Miscellaneous	30.00		1.5
Total		$1,000.00	50
Net Profit		100.00	5

B. An annual report would be a sum total of the twelve monthly reports.

The balance sheet is a statement of the assets - or those things owned by the business. The liabilities are those amounts owed by the business. Assets minus liabilities - Net Worth.

An annual report may be something like the following:

Current Assets		
Cash	$900.00	
Food inventory	150.00	
Deposits with Public Utility Co.	25.00	
Total Current Assets		$1075.00
Fixed Assets comprise articles and equipment that are more or less stationery and can be used for some time. The value of fixed assets may be as follows:		
Large equipment (kitchen)	$2500.00	
Dining room fixtures and furnishing	1500.00	
Small kitchen equipment	200.00	
China, glass, silver, linens	500.00	
Miscellaneous furniture and equipment	200.00	
Total Fixed Assets		4900.00
Total Assets		5975.00
Current Liabilities		
Accounts payable	$ 600.00	
Installment accounts or notes	1100.00	
Total Liabilities		1700.00
Net Worth		
Owner's capital June 1	4175.00	
Net profit for June	100.00	4275.00
		$5975.00

ASSIGNMENT:

1. What is the difference between gross margin and net profit?

2. Prepare a balance sheet for the following:

Foods Sales	$3418.24
Cost of Food	1210.15
Gross Margin	

Operating Expenses

Salaries and wages	$ 521.42
Employees meals	74.16
Laundry	58.60
Sundry supplies and expenses	46.08
Repairs	17.25
Heat, light, power, water, telephone	52.18
Insurance	17.00
Rent	150.00
Depreciation - furniture and fixtures	22.00
Legal service	18.00
Interest expense	9.00
Payroll taxes	28.00
Miscellaneous expenses	15.42

3. What was the net profit on the above statement?

4. It is good practice to break down the different food products purchased. Make ten columns and use the following as the headings:
   Meats, Poultry, Fish, Fruit, Vegetables, Butter, Milk and Cream, Ice Cream, Groceries, Other Food Purchases.
   Consult the day book from the cafeteria and enter into each column the amount spent daily for each food group listed.

5. a. Total the amounts in each of the columns. This represents the money spent for each group for the month.
   b. List the foods according to cost 1. the most expensive, 10. the least expensive.
   c. Which foods should be sold at the highest prices?
   d. Consult a commercial restaurant menu to verify your conclusions regarding selling prices.

6. a. The United States Treasury Department, Internal Revenue Service - from Bulletin F. shows the following table of depreciation values on equipment and furnishings for restaurants. This is a partial list that owners use in figuring depreciation for income tax calculations.

	AVERAGE USEFUL LIFE (YEARS)
Chairs	10
Kitchen equipment	10
Silverware	5
Tables	15
Trays	10

b. Consult the equipment inventory for the cafeteria. List the cost of each of the above items. (The total value of each item listed)

(1) How would you arrive at the amount of deduction you would be entitled to?

(2) Figure the allowance for depreciation on the following pieces of kitchen equipment: range, refrigerator, bake oven.

7. The gross profit for a business was as follows:
January, $602.54, February, $1143.56, March, $1076.84
April, $2103.24, May, $2174.88, June, $1891.44,
July, $2278.42, August, $976.44, September, $2264.80,
October, $1902.15, November, $1536.48, December, $2521.46.
What was the gross profit for the year?

8. Expenditures were as follows:
January, $496.32, February, $920.16, March, $843.01,
April, $1094.15, May, $1438.54, June, $1007.68,
July, $1461.25, August, $903.56, September, $1115.49,
October, $1013.88, November, $1245.63, December, $1098.21.
What were the total expenditures for the twelve months?

9. What was the net profit?

Reconciliation of Bank Balance

Lesson No. 8

OBJECTIVE: To learn how to prepare a reconciliation of a bank balance.

RELATED INFORMATION:

Cash is the one asset in any business that can be converted quickly into other items. It is also the one that can disappear quickly and some times it is difficult to know where it has gone and what it was used for.

Cash available for use may be classified as:

a. "cash on hand"
b. "cash in the bank"

Cash on hand would be the money you actually had available either in the cash register or safe. Since it is not a safe business practice to keep too much cash on hand, the cash that is not needed is put in the bank. That sum would represent the cash in the bank.

When money or checks are put in the bank, the person depositing the money, makes out a deposit slip. The bank clerk will check the slip and then enter the deposit into the depositor's bank book.

Usually at the end of each month, the bank sends out a statement to each depositor.

The amount shown on the bank statement of a checking account may not be the same as the amount of money that is available for use for these reasons.

1. If deposits are made daily, the statement of any particular date rarely includes the deposit of that date, because the deposit would not be posted by the bank until the following day.

2. Checks drawn against the account a few days before the statement was made may not agree with the balance, because all of the checks may not have cleared and been charged to the account.

In Lesson 6 you learned how to make up a "Cash Disbursements Record Book" and you also learned how to prepare an "Analysis of Cash Payments".

PROCEDURE:

1. Review the two forms used in Lesson 6.

2. Make up a simple form like the sample.

RECONCILIATION OF BANK STATEMENT

Date - June			Expenditures	Deposits
Balance				$ 568.45
Additional deposits				119.50
				402.15
				110.00
		Total		$1200.10
Outstanding Checks				
Check No.	Date			
163	6/27		$ 96.45	
164	6/28		102.15	
158	6/20		54.82	
		Total	$253.42	
		Balance Available		$ 946.68

The bank charged $2.15 for handling the account, so be sure to subtract that amount from your balance.

3. All cancelled checks accompany the bank statement. Check these first against the check book as well as the statement- to safeguard that the amounts were not changed. A colored pencil could be used to show the cancelled checks that have been returned. It would follow that items not checked off would be outstanding.

ASSIGNMENT:

1. Cash available may be classified as _______ and ______.

2. Discuss this statement, It is not a safe business practice to keep too much cash on hand.

3. What are the advantages of paying bills by check?

4. Explain why the bank statement may not agree
   a. with the deposits
   b. with outstanding checks.

5. A bank statement shows the following:

Balance April 30 - $3426.09.

Deposits - $142.08, $107.43, $211.58, $40.96, $124.88,
$136.21, $145.00
(deposits made for the month of May)

Cancelled checks - $181.21, $40.23, $156.09, $212.15, $87.28,
$415.98
(expenditures during the month of May)

Outstanding checks - $408.15, $11.57, $21.76, $87.59

Deposits made after the statement has been made up -
$114.28, $109.21, $324.68

Bank charge $2.76

Prepare the reconciliation for this bank statement. The statement was received from the bank on May 30.

6. How much cash would this business have in the bank account?

7. When would the outstanding checks appear on a bank statement?

UNIT VI - ACCOUNTS

Achievement Test No. 6

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1. Make out the following payroll:
   2 workers 40 hours each @ $1.10 per hour
   3 workers 35 hours each @ $1.65 per hour
   2 workers 40 hours each .75 per hour

2. A worker received $75.28 and 40% commission on his salary.
   a. What was the commission?
   b. What will be the total amount that the worker will receive?

3. What is the difference between gross profit and net profit?

4. The receipts for one day in a restaurant were $702.64.
   a. Figure the gross profit.
   Use the following percentages as a basis for computing the problem
   (1) 45% food cost ________ = $ food cost
   (2) 10% labor ________ = $ for labor
   (3) ? % for other expenses and profit ? $ ________

5. $205.76, $119.48, $316.07, $291.21, $368.14, $407.89, $118.54, are the total receipts for each day. What were the total receipts for the week?

6. a. $102.46, $80.02, $157.43, $109.18, $175.07, $318.02, were the daily expenditures for the above restaurant. What were the total expenditures?
   b. Was there a profit or loss? How much?

7. The following bills were received by a restaurant operator who was preparing to open a new restaurant:

canned goods and staples	$1743.08
kitchen equipment, machines, etc.	5419.95
kitchen equipment, tools and utensils	461.89
dining room equipment	
tables	420.00
chairs	420.00
draperies	186.00
dishes	502.57
glassware	180.75
silver	326.00

What were the total expenditures?

8. a. Tables cost $14.00 each. How many tables were purchased?

   b. If four chairs were used for each table, how many chairs were purchased?

   c. What was the cost of each chair?

9. The inventory on March 1 was valued at $308.15. Staples which amounted to $57.92 were purchased. At the end of the month the inventory amounted to $184.68. How many dollars were spent from this account for the month?

10. True or False?

    a. A profit and loss statement should be prepared by any business at definite intervals.

    b. Business often fails because of poor records.

    c. A restaurant owner or buyer for the business should receive salesmen at any time.

    d. The check stub and the cancelled check are evidence that bills have been paid.

    e. New workers are assets to a business.

    f. Disbursement means money received.

    g. The cash register tape can be used as a check of the restaurant receipts.

    h. The value of the inventory represents money saved.

    i. A good business operator tries to control all types of waste.

    j. Employees who waste time deserve good pay.

COMMERCIAL FOODS

Related Mathematics I **General Review**

1. Which fraction is the largest - $\frac{1}{4}$ $\frac{1}{3}$ $\frac{1}{8}$

2. a. If a nine inch layer cake was cut into eight pieces, each piece would be one _____ of the cake.
   b. How much money would be received if the entire cake was sold at 25 cents per cut?

3. The cost of producing the cake was 40 cents. Was the cake sold at a profit or loss? How much?

4. A caterer submitted the following figure or estimate for a wedding reception: $35.00 for a wedding cake, $1.25 per guest for fancy sandwiches, petits fours and coffee, plus 15% gratuity. What would be the cost of the reception for 200 guests?

5. Find the cost of preparing 60 fruit cups @ .056 each.

6. The weight of a leg of lamb before cooking was 7 lbs. 2 oz. After cooking, it weighed 5 lbs. 6 oz. What was the loss of weight during cooking?

7. Change the following measurements to their equivalent weights: a. 4 tablespoons butter, b. 6 tablespoons flour, c. 1 1/2 cups sugar, d. 8 cups fat, e. 1 quart milk.

8. What % of a worker's pay is deducted for: a. social security, b. withholding tax and c. unemployment insurance benefits? Consult government publication for rates.

9. A man works 40 hours at $2.75 per hour. a. How much does he earn? b. Figure out each deduction, using the rates from Problem 8. c. What is his "take home" pay?

10. A restaurant bought a new appliance that cost $475.00. $105.00 credit was applied for turning in a piece of used equipment.
    a. What was the cash cost for the new appliance?
    b. By paying cash, 5% of the purchase price was deducted. How much would this deduction amount to?

11. According to the inventory on Jan. 1, there were 35 #10 cans of peas on hand. On Jan. 31, there were 15 on hand.
    a. How many #10 cans were used? b. At $0.56 1/4 per can, what was the value of the peas that were used? d. What is the value of the stock on hand Jan. 31?

12. The cost of a standard recipe yielding 50 portions is \$2.975. What is the cost per portion?

13. The daily receipts in a restaurant were as follows: \$138.46, \$209.21, \$186.23, \$146.19, \$168.70, \$203.27. What was the total?

14. 23% of the total receipts in Problem 12 was used for food, 2% for rent. a. What amount was used for each? b. How much money was left?

15. The restaurant in Problem 13, served 743 customers. What was the average amount of each check?

16. If 30 servings can be obtained from one No. 10 can of peas, how many cans will be required for 180 servings?

17. 100 tea bags cost 65 cents. What is the cost of one tea bag.

18. 5% of a box of 125 tomatoes was spoiled. How many tomatoes were unfit for use?

19. A seashore restaurant took in \$6245.35 in July. The following November, the receipts were 60% of those received in July. How much money was taken in during November?

20. How many gallons of brick ice cream cut 8 to the quart should be purchased to serve 256 portions?

21. A restaurant famous for popovers figured that the average served per guest is 3. How many dozen popovers should be made for 80 guests?

22. How many ounces in 10 lb. 8 oz. veal. How many 3 ounce portions will this quantity serve?

23. How many half-pint cartons of milk will 5 gallons of milk yield?

24. What fraction of a case of canned goods is each of the following?
    a. 3-#10 cans, b. 4-#5 cans, c. 24-#1 cans,
    d. 2-#10 cans, e. 8-#5 cans

25. Sardines are usually packed $100/\frac{1}{4}$ cans to a case. In one month, 30 cans were used.
    a. Write this number as a fraction.
    b. Write the number representing the number of cans left as a fraction.

26. a. 3 cups flour equals what fractional part of one pound?
    b. 2 cups milk equals what fractional part of one quart?
    c. 4 eggs equals what fractional part of one dozen?
    d. 10 tablespoons equals what fractional part of one cup?
    e. 1 quart equals what fractional part of one gallon?

27. A cook worked 6 hours, 45 minutes on Monday; 7 hours, 30 minutes on Tuesday, 8 hours on Wednesday; 5 hours on Thursday; and 6 hours, 40 minutes on Friday. What was the total time worked?

28. At $3.20 per hour, how much did the cook earn?

29. A waitress received $40.00 as wages. Tips amounted to three-tenths of her wages. a. How much did she make in tips? b. What were her total earnings?

30. Add the following: $32.53, $410.68, $1.87, $0.43, $16.19, $217.03, $411.00, $17.65, $225.02.

31. Divide 7645 by 63.

32. A honeydew melon cost 59 cents. It was cut into 12 pieces which were sold at 15 cents each.
    a. How much was received from the sale of the melon?
    b. Was there a profit or a loss? How much?

33. A restaurant owner received a bill for $563.12 for canned goods. He paid the bill in 10 days in order to take advantage of a 15% discount.
    a. What was the discount?
    b. How much did he have to pay for the canned goods after deducting the discount?

34. If coffee costs 88 cents per pound and yields 40 cups, what is the cost of one cup?

35. Find the total number of calories that the following luncheon will yield: 2 slices of white bread @ 65 calories each; 2 ounces luncheon meat @ 165 calories; 1 cup malted milk @ 280 calories.

36. If a person were on a 2000 calorie daily allowance, how many calories would remain for the other two meals?

37. The following bills were received for one week; meats $356.89, fruits and vegetables $112.38, dairy products $206.54, gorceries and staples $187.41, bakery products $87.28, fish and seafood $193.48. What is the total of the bills?

38. The owner of the above establishment found that $912.15 remained after paying the bills. What was the total of the receipts for this period?

39. The meat salesman quoted $1.10 per pound for club steaks. Later, he offered the restaurant a special price of 99 cents per pound if the owner would purchase 6 boxes of 40 pounds each.
    a. What would have been the cost of this quantity of meat at the first quotation?
    b. What was the cost at the second figure quoted?
    c. How much would be saved by buying the large quantity?

40. At 17 1/2 cents per pound, what is the cost of 1,200 loaves of bread? Each loaf weighs 2 pounds 4 ounces.

41. What is the cost per loaf of the bread in the preceding problem? Carry out the figure to five decimal places.

42. The pastry cook prepared the following products, which were sold as follows:

50 servings Jello @ 10 cents each
10 pumpkin pies - 6 cuts per pie at 25 cents per cut
5 layer cakes - 10 cuts per cake at 25 cents per cut
20 baked apples at 15 cents each
75 servings pudding at 20 cents per serving
5 dozen cream puffs at 35 cents for each cream puff

What were the total receipts from this production station?

43. The dessert cook worked 8 hours at $1.50 per hour and the materials used for the various desserts cost $29.32.
    a. What was the total cost of the labor?
    b. What was the difference between the receipts and the cost of production?

44. Write in words the following decimals:

a. .25
b. .01
c. .131
d. .6
e. 1.35

45. a. Subtract 1423.018 from 7186.241
    b. Divide 40738 by 212

46. Multiply 21468 by 107

47. 12 gallons of soup were served for dinner in an industrial cafeteria. How many bowls or 1 cup servings were served?

48. A restaurant used 3 cases of eggs in 4 days. How many dozen eggs were used?

49. How many pounds of tomatoes averaging 5 to a pound should be ordered for 250 servings? 1/2 tomato will be used for each serving.

50. A business paid 6% of its income for taxes and 5% interest on a mortgage. The income was $10,246.83. What was the amount for each expense?